UNIVERSITY OF HELSINKI
FACULTY OF LAW

EDINAM K. GLOVER | PRE-COLONIAL, COLONIAL AND POST-COLONIAL FOREST LEGISLATION, FOREST POLICIES AND PRACTICES

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FOREST LAW, FOREST POLICY AND ENFORCEMENT MECHANISMS FOR PROTECTION OF FOREST RESOURCES IN THE SUDAN

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Edinam K. Glover

Academic dissertation

for the Doctor of Laws (LL. D.) degree

To be presented, with the permission of the Faculty of Law of the University of Helsinki, for public examination in Lecture Room P673, Porthania (Faculty of Law), Yliopistonkatu 3, on Thursday 19th November, 2020 at 12:00 o'clock (noon)

Helsinki

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ISBN 978-951-51-6792-7 (paperback)
ISBN 978-951-51-6793-4 (PDF)

DEDICATION

This dissertation is dedicated to Drs. Anke Korteweg for the unwavering encouragement and reliable help and support.

ABSTRACT

Many countries in sub-Saharan Africa have seen considerable concern about the depletion and loss of natural resources due to over exploitation and other socio-economic activities. This menace of resource degradation threatens the stability of the ecosystem, food security, national and international security, and the very survival of life of people in the region. The general aim of this research is to explore how the legal development during colonial times - with forests and forest activities becoming colonial property and under colonial authority, and with the exercise of police power - in many ways contradicted and broke up the traditional customary law in the Sudan. More specifically, the study describes the major elements in the development of forest law in the Sudan: Prior to the colonization, during the colonization by the British from late 18th century to independence in 1956, and elements of the development of the forest law after independence. It seeks to analyse the legal mechanisms for enforcement and implementation in the broader context of sustainable development in the Sudan: It examines the enforcement from the perspective of its relationship with environmental laws. It examines a wide range of laws and conventions that have an indirect impact on forest conservation and development. It attempts to answer the following questions: What are the legal enforcement mechanisms that help to enhance compliance with the rule of law and promote sustainable development? What are the obstacles that hinder the enforcement and implementation of these legal mechanisms? What was the forest policy and legislation in Sudan during the colonial era? What changes, if any, occurred or should have occurred? Looking into the future, what may be expected, and how could it be made better than today? This study complements qualitative content analysis (QCA) with mono-disciplinary legal research data. Qualitative content analysis largely involved the use of data derived from a range of primary sources of Environmental Law such as domestic and regional law, early 20th-century English colonial law and customary law as evidenced by national legislation, government statements and restatements. The data have been analysed by means of content analysis. Results indicate that legal mechanism that can help to enhance compliance with the rule of law may include public awareness and participation, conservation orders, environmental permitting and licensing system, and environmental impact assessment. It has been shown in this study that the received law forms an essential or basic element of forest legislation and development in the Sudan and as far as law does not fulfil people's needs, they do not consider it as binding. In addition, the evidence seems to indicate that the colonial era laws have not been compatible with Sudanese pre-existing social norms and have not been well received and thus implemented. Findings demonstrate that in a bid to tackle land use issues, the government of the Sudan has created the necessary enabling

environment by putting in place environmental policies and legislation as well as setting up a wide range of institutions that handle various aspects of resource management such as law enforcement, policy formulation, research, and creation of awareness. The evidence seems to be strong that the government has provided some level of legal recognition to customary and state land tenure. Despite the above efforts, environmental degradation in Sudan is still a major concern. The study suggests that efforts must be made to encourage an internal process of law development and to produce a self-sustaining demand for legal innovation and change. The conclusion from the study is that the most common explanation for non-compliance is inadequate monitoring and enforcement of law. Weakness in the rule of law has grave consequences in minimizing progress towards sustainable development.

Keywords: *Compliance, colonialism, enforcement, environmental changes, foreign law, legal mechanisms, natural resources, sub-Saharan Africa, the Sudan*

PREFACE

Acknowledgement is made to the University of Helsinki for the grant awarded for Outstanding International Postgraduate Students and for the Chancellor's Travel Grant Award. Grateful acknowledgement is made to the Hollo Foundation, Helsinki and Business Law Forum, Faculty of Law, University of Helsinki for funding part of the research.

I would like to express my sincere gratitude to my academic supervisor, Professor Emer. Dr. Dr. iur Erkki Hollo, for his intellectual contributions to my postgraduate research and for granting me the leeway for planning and carrying out this study. With his enthusiasm, insight, valuable suggestions, fruitful criticisms, thoughtful guidance and talent for explaining things clearly and simply, introduced me into the exciting fields of International Environmental Law in which to learn and grow. I have really enjoyed working under him.

I am grateful to Professor Kai Kokko for accepting the task of being my custos and for his immense support and assistance at various stages of the research process.

I would like to record a note of thanks to the two reviewers, Professor Emer.Dr. Gabriel Michanek of the Faculty of Law, Uppsala University in Sweden, and Professor Dr. Jukka Similä of Faculty of Law, University of Lapland, Finland, whose critical comments and valuable suggestions were fair, constructive and useful in improving the quality of the dissertation at the final stage.

Thanks to Professor Dr. Heikki Pihlajamäki for accepting the task of acting as Faculty representative for the doctoral defence.

I am conscious of specific debts to current and former staff of the Faculty of Law, University of Helsinki for the friendly working environment and with whom I have had many fruitful discussions over the years. Special thanks are due to the following for their support: Professor Dr. Kimmo Nuotio (former Dean), Professor Dr. Johan Barlund, Professor Dr. Frey Nybergh, Professor Dr. Johanna Niemi, Professor Dr. Pia Letto-Venamo (Dean, Faculty of Law, University of Helsinki), George Amin, Dr. Louise Fromond, Collins Udeh, Dr. Eriika Melkas, Sean Morris, Dr. Robert Utter, Dr. Antti Belinski, Desiree Söderland, Matias Forss and Anu Martinkauppi. I am deeply grateful. My thanks also go to Jutta Kajander (former Postgraduate Coordinator, Faculty of Law), Sirpa Kajan (Education Planning Officer) and Elina Lähdeniemi (Event

producer, University of Helsinki) for all their kind help with administrative work.

I have had help and support from many friends who have advised me on particular matters. These contributors are too numerous to mention individually but nevertheless, I express sincere thanks to them. I would like to express my thanks, in particular, to Ing. J. v. Wijk and family, Drs. J. Stada and family, Camilla B., Minna Alaluusua, Dr. Sakina Elshibli, Mary Dewar, David A. Edwin, Dr. Badal A. Hassan, Tapio Luoma-aho Tuomas, Lamin Jammeh, Dr. Minna Hares, Vincent Klutse, Edmund Asare, Maija Paavolainen, Hekka O., Maria Dimitriadis, Panu Ahvenharju, Maisa L., Omar A. Abdi, Lea Kurki, Gamal Idris, Jaana Koponen, Glen A., Hanna Eskelinen, Professor Dr. Elnour A. Elsiddig, Professor Emer. Dr. Dr. Olavi Luukkanen, Professor Emer. Dr. Harri Westermarck and Anneli Westermarck who helped me in diverse ways; I am deeply grateful.

My gratitude also goes to my siblings: Worla Glover, Dr. Evam Kofi Glover, Mawutor Glover, Amass Akpene Glover, Yayra Glover and Dr. A. Kwasi Glover, on whose constant encouragement and love I have relied throughout my course of study at University of Helsinki.

I appreciate immensely, the forbearance and encouragement given me by my lovely children Nina Glover and Alex Glover during the period of study.

My profound gratitude goes to my parents, Solomon B. A. Glover and Mercy Glover, who always encouraged us from childhood to actively seek knowledge and be independent thinkers; when this meant and will mean a lengthy separation and pattern of irregular home visits.

Parts of this dissertation have been presented at international conferences, which also contributed to enrich the content of this work. I appreciate valuable suggestions from seminar participants of conferences organised by the: *Nordic Environmental Law, Governance and Science Network (NELN+)* (University of Aarhus, Denmark), *NELN+* (University of Oslo, Norway), *Commission on Land Degradation and Desertification (COMLAND)* (National Taiwan University, Taipei, Taiwan), *COMLAND* (University of Haifa, Israel), *COMLAND* (University of Chile, Santiago, Chile), United Nations Environment Programme/World Agroforestry Centre (Kenya), *Association for Environmental Studies and Sciences* (Santa Clara University, California, USA), *Oxford Biodiversity Institute* (University of Oxford, England, UK), *Institute for Global Law and Policy* (Harvard Law School, Cambridge, MA. USA) and California State University, Chico, CA, USA.

Last, but certainly not least, I am indebted to Drs. Anke Korteweg for all her kindness, support, and encouragement during this research and numerous stimulating discussions that have shaped my thinking on the topic of environmental changes: To her I dedicate this dissertation.

All shortcomings remain entirely my own.

Edinam K. Glover.

Helsinki

LIST OF ABBREVIATIONS, ACRONYMS, AND SYMBOL

ACHPR	African Charter on Human and Peoples' Rights
ADB	African Development Bank
ASIL	American Society of International Law
CBD	Convention on Biological Diversity
CED	Centre for Environment and Development
CIFOR	Center for International Forestry Research
CMS	Convention on the Conservation of Migratory Species of Wild Animals
CITES	Convention on International Trade in Endangered Species
COP	Conference of the Parties
CO_2	Carbon dioxide
DFID	Department for International Development
EC	European Commission
EEA	European Environment Agency
EIA	Environmental Impact Assessment
FAO	Food and Agriculture Organization[i] of the United Nations[ii]
FED	Feddan (1 Feddan = 0.42 ha or 4,200 m^2)[iii]
FERN	Forests and the European Union Resource Network[iv]
FNC	Forests National Corporation
FPP	Forest Peoples Programme
GOAR	General Assembly Official Records (United Nations)
HCENR	Higher Council for Environment and Natural Resources
ICCPR	International Covenant on Civil and Political Rights[v]
ICESCR	International Covenant on Economic, Social and Cultural Rights[vi]
IFPRI	International Food Policy Research Institute
ILM	International Legal Materials
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature and Natural Resources
LNTS	League of Nations Treaty Series, 1920-1946
MEA	Multilateral Environmental Agreement
NSSD	National Strategies for Sustainable Development
OECD	Organization for Economic Co-operation and Development
PSNCME	Permanent Secretariat of the National Council for the Management of the Environment

QCA	Qualitative content analysis
TIAS	Treaties and Other International Acts Series (compendium of treaties, United States)
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme[vii]
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples[viii]
UN-ECA	United Nations - Economic Commission for Africa[ix]
UNEP.	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNGA	United Nations General Assembly
UNTS	United Nations Treaty Series (1946 to date)
UNUDHR	United Nations Universal Declaration of Human Rights
USAID	United States Agency for International Development
UST	United States Treaty Series (1950 to date)
WCED	World Commission on Environment and Development
WHO	World Health Organization
WWF	World Wide Fund for Nature (formerly named the World Wildlife Fund, which remains its official name in Canada and USA).

Contents

CHAPTER I

INTRODUCTION

1.1 Background information

Forests play an important role for local communities in general in developing countries. They provide a source of livelihood, protection for the soil, subsistence goods and income from the sale of forest products, as well as inputs for agriculture and employment. Forests also provide a range of environmental services and have cultural and religious significance.

Contrary to popular perceptions, sub-Saharan Africa presents a typical example of a region where enforcement mechanisms have failed to trigger improvements in environmental and natural resources management. Millions of hectares of sub-Saharan Africa's landmass have been degraded as a direct result of human activities over the ages. Indeed, this trend has continued to pose a big threat to the environment, especially as sub-Saharan Africa started diversifying into more capital-intensive projects as a way of achieving an increased productive capacity as well as improving the standard of living of its people. The effects of these actions have manifested in the degradation of the environment, which over the years, has engulfed the length and breadth of the continent. One of the areas threatened by mismanagement in sub-Saharan Africa is biodiversity.

Around sub-Saharan Africa, pressures from colonial foresters increasingly affect both the physical and socio-economic landscapes. As summarized in diverse books, reports and articles, forestry in colonial sub-Saharan Africa came down on ‘‘forestry as public property’. This meant conventional, centrally led forestry was based on the idea that forestry as a long term and large-scale activity could best be implemented by a professional forest service through which forestry provides raw material for industries and thereby contributes to economic growth and rural development. It is worth mentioning that laws transplanted from the former colonial powers have not been compatible with the pre-existing order.

Compilation and review of laws and regulations in the Sudan identified with water, rangelands, forests and routes of livestock demonstrate that a huge collection of laws that could conceivably add to fortify natural resources management and contribute to the achievement of peacebuilding and sustainable development goals, is in place. Nonetheless, these laws and directives are

broadly dispersed and divided and information about them is restricted to a small number of people. [1] The Sudan's present legal system derived from the English legal system is state-centric, and in the previous decades, has generally reflected a strong tradition of welfare-statist form of governance.

A large body of field research findings indicates that in the Sudan, it is not generally the absence of laws that is the issue; rather the implementation of laws – in many cases most of these laws are weak or not effectively enforced.[2] It is assumed that adoption of a unified regulatory environment for enforcement of the existing legal framework with respect to land legislation and customary rights to land and tenure security may be appropriate for the conservation of genetic diversity of species. Thus, an appropriate regulatory framework will be in harmony with actions aimed at sustainable management of resources as well as Sudan's National Biodiversity Strategy and Action Plan. Efforts will take place to reserve and improve management of target conservation areas.[3]

This study sought to answer three main questions related to the foregoing: (a) What problems is the national implementation of international environmental treaty law facing in the Sudan and how could those problems be responded to; (b) What instruments could be used to enhance the sustainability of forestry in the Sudan under observation and; (c) How could the involvement of the local people be improved? This study explored the influence of colonial pathways and new trends on how a diverse range of actors responds to those changes and mobilizes in order to govern their own resources better.

The study includes discussion of issues related to land reform, as well as the various international obligations and commitments the country has undertaken. It described legislative actions that influence the availability of legal instruments as well as integrated measures for the regulation of the sectoral instruments (e.g. forest laws) and national biodiversity, and action plans. This study demonstrated the importance of institutional governance and social change as areas falling particularly within the disciplinary boundaries of law and could now be

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[1] World Bank. Sudan Peace –building for Development Project (SPDP), Analysis of Natural Resources Management, Legal and Policy Framework and Conflict (Draft Final Study Report), Sudan. 2016:2 (World Bank 2016:2).

[2] World Bank 2016:2.

[3] FAO/ITTO. Forest law compliance and governance in tropical countries: A region-by-region assessment of the status of forest law compliance and governance, and recommendations for improvement. FAO and ITTO 2010:12, (FAO/IITO 2010:12).

considered by many disciplines as areas where law can make a significant contribution

The following section spells out the problem addressed in the current study.

1.2 Statement of the research problem

The present study takes forestry resources-related issues in the Sudan as a point of departure and demonstrates how the failure of forest-related law and policy enforcement led the Sudan into a number of problems caused by environmental degradation. A few of these issues were environmental, and in addition to the forest resources-related issues, there were also issues relating to pollution of rivers, oil extraction, urban sprawl or urbanization, etc., but beyond the scope of the current study.

Firstly, a basic problem in Sudan's forestry sector is the absence of enforcement mechanisms to tackle issues identified with forest law compliance. The persistence of environmental degradation in the Sudan is attributed to the failure of/or inadequate environmental enforcement mechanisms (actions taken in case of non-compliance with environmental law) in relation to compliance with environmental treaty obligations. From a legal perspective, the greatest challenge lies not just in the effectiveness of the legal framework, but in its enforcement or implementation. Lack of mechanisms therefore induce conflicting and obsolete laws, reconciliation of conflicting interpretations of the many age-old and previous forest statutes and forest law and policies, an absence of inter sectoral coordination, and an absence of local capacity to enforce legislation and implement sustainable forest management policies. Key challenges to implementation of the forest policy and legal framework in the Sudan are institutional and governance weaknesses and a lack of transparency and accountability, contributing to issue of inadequate environmental capacity and chances for abuse of power.

Powerful interest groups, which effectively avert efforts to monitor independently illegal operations in the forest sector, also influence the issue of inefficiencies and weaknesses in the institutional environment in the Sudan. Power asymmetries and lack of employment or livelihood opportunities for local people lead to passive acceptance of illegal forest illegality because of fears of incidents of intimidation and security threats.

Secondly, environmental law was created arbitrarily without adhering to established procedures. In addition, for the fact that in a few circumstances where law was given there arose legal issues in some circumstances with lack of

its enforcement or that it is ineffective either because the laws could be so old that the respective laws and their implications no longer exist (or ever existed).

Further, inconsistencies between forest policies and legislation due to incoherent, unrealistic and hardly enforceable legislation in the forest sector and between sectors, resulting in distorted economic incentives and consequently promoting illicit operations. The flawed forest policy and legislation fail to take into consideration significant number of caveats undefined, including forest land tenure issues and use rights. Undeniably, the evidence related to the consequences of regulation in the Sudan shows that it is often excessive. The more regulated legal systems induce prohibitively high transaction costs of legal operations and rendering it unrealistic for many forest users and stakeholders to hold fast to the law.[4] This is especially the situation for small and medium-sized enterprises that have been actively involved in community-based forest management but are often incompetently equipped to comply with long-winded administrative procedures, and thus be compelled to work outside the law.

The next section provides the logical rationale for conducting this research. It provides several reasons as to why the researcher chose the specific topic for study and explains why the topic was essential in general, including details about why it was worth studying.This section also attempts to substantiate the existence of the research problem. An attempt was made to justify the study, using enough references to credible sources to stress the importance of the problem, the need for such a research and how conducting this study may contribute significantly to the cummulative knowledge and general field of study. Thus, the section includes a comparison of the similarities and dissimilarities between the present research and earlier studies, under two main subjects, namely, "*Enforcement of forest laws"* and "*Effects of foreign law on traditional forest legislation."*

[4] FAO/IITO 2010:10.

1.3 Justification of the study

1.3.1 Reasons for choosing the topic

A vital question to tackle at the beginning of this discussion about environmental law and policy in the Sudan is why should our focus be on the Sudan's forest resources development? A number of reasons has informed my choice of the topic: "*The failure of implementation of forestry laws and policies in the Sudan"*:

First, the inspiration for this study came out of earlier research undertaken by this investigator in 2005 on "*Tropical dryland rehabilitation: Case study on participatory forest management in Gedaref, Sudan"*[5] The foregoing research provided an initial assessment on environmental issues in the Sudan. The investigator's choice of the topic: "*The failure of implementation of forestry laws and policies in the Sudan*" was informed by this research familiarity. Later, however, the investigator's experiences in the field of work, background as an agriculturist, forester and researcher of environmental law for many years also gave additional impetus to the topic; various reflections in a real situation and research projects.

As indicated by Grönwall, "*the most important was the prospect of looking for perceptions, practice and the 'law in actions' beyond the 'law in books'* ".[6],[7] The investigator's experience was that millions of hectares of the country's forests were disappearing at an alarming rate and manner in which this resource

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[5] See Glover, Edinam K. *Tropical dryland rehabilitation: Case study on participatory forest management in Gedaref, Sudan.*' Doctoral Dissertation, Viikki Tropical Resources Institute, Faculty of Agriculture & Forestry, University of Helsinki, Finland: Helsinki: University of Helsinki. 2005. (Glover 2005).

[6]Grönwall, Jenny T. Access to Water: Rights, Obligations and the Bangalore Situation. Ph.D. Thesis, Linköping University, Department of Water and Environmental Studies, Linköping Studies in Arts and Science No. 439. 2008. (Grönwall 2008).

[7] These phrases were first used by Roscoe Pound in the early 20th Century to denote the distinction between 'law in the books' and 'law in action'. The core of the argument points to the fact that the study of statute and decided cases is not enough as a way of determining how legal institutions and legal practitioners conduct themselves (Baldwin, John and Davis, Gwynn. Empirical Research in Law. In: Cane, Peter and Tushnet, Mark (eds.). *The Oxford Handbook of Legal Studies*. New York: Oxford University Press. 2003:886. (Baldwin & Davis 2003) citing Pound, Roscoe. "Law in books and law in action." *American Law Review*, 1910, 44 (1). (Pound 1910: 12-16).

was deteriorating posed a significant long-term threat to the environment. The effects of environmental changes have been manifested in low productivity growth, which over the years, has affected the length and breadth of the Sudan.

Against this backdrop, the investigator came to the realization that the country has sound environmental laws but the means of implementation are either lacking or non-existence. Suffice it to say that the research was motivated by the observation of stark and rapid environmental changes across the Sudan, and their consequences. Thus, the significance of this topic to this investigator relates to the fact that environmental laws and policies are in relatively weak position. The importance of this study lies in attempts to tackle the adverse environmental, socio-economic and legal concerns, which have particularly bedevilled implementation of forestry laws and policies in the Sudan. An aim of the current study is to find answers to questions related to mechanisms that help improve access to natural resources and better understand the impact that various legal norms and provisions have in reality.

Second, the topic for this dissertation was chosen because of the realization that the Sudan faces a considerable number of challenges in developing and sustainably managing its forestry sector. Bearing this in mind, there has been a rudimentary exploratory analysis of the law relating to sustainable development as international, national and development stakeholders have been hesitant to explain their significance, conditions of utilization and exact details of the means of implementation. There has been a gap in existing literature in relation to enforcement mechanisms in the national regulatory framework and the impacts or influence of foreign law imposed by a colonial power on the traditional forest legislation in the Sudan during the colonial period. In addition, the present study was prompted by historical legacies of colonial resource protection. More specifically, concerns over reducing adverse environmental impacts related to forest management due to colonial legacy in forest policy and legislation was also a reason for the investigator's interest in this study.

Third, bearing in mind the foregoing considerations, the research subject was chosen because it is a relevant topic in the world today. Several collections of international (e.g. Rio Declaration and the Convention on Biological Diversity), regional and national environmental records are made up of a wide range of obligations and commitments for implementation of environmental conventions and related international agreements. However, much of the time there is an absence of satisfactory institutional and enforcement mechanisms, to implement environmental conventions and related agreements.

Fourth, a decision to focus the study on the Sudan has been taken because of multiplicity of land-use types in the country; its human and economic

significance for the local, regional and national economies. Sudan also represents the population and economic gravity of dryland sub-Saharan Africa as well as the concentration of natural and renewable resources. Drawing mainly on Grönwall's argument[8] by conducting such a research in the Sudan, the researcher wanted to gain a material reality against which to analyse abstract issues such as role of law in protecting the environment and natural resources. In addition, the researcher's own understanding of legal mechanisms for managing environmental and natural resources could only be developed through sound jurisdictions and other relevant spatial information visible. [9]

Fifth, the research topic affords one a conceptual understanding of the major legal problems associated with environmental protection, more broadly, sustainable development in the Sudan. The choice of the dissertation topic allows one to focus on the environmental and sustainability issues that are important of appropriately safeguarding the environment for the survival of mankind's quality of life on earth and stresses the usefulness of environmental legal systems. The multidisciplinary research approach dimension of the topic was what also aroused the investigator's interest. This research brought together the fields of law, agriculture and forestry. It added new insights into all these fields of study by combining and applying multidisciplinary research to address key legal or environmental questions or issues of Environmental Law. The subject of Environmental Law was of paramount importance in this research, as the topic was linked to basic environmental law regimes, the aim of which is to combat pollution and degradation. Environmental Law represents the body of laws that regulate the impact of human activity on the natural environment. It is a conglomerate of compartments (air, water, soil and organisms) or of ecosystem.

Sixth, the topic was motivated by the observation of surprising lacunae in the current scholarship on environmental issues related to implementation of environmental legislation in the Sudan. This research follows the fact that until recently, there had not been many examples of studies in the Sudan that specifically sought to accommodate the elements of Environmental Law-forest-livelihood policies. The result of this poorly developed execution plan was unforeseen adverse long-run environmental, social and economic effects on local communities and the country at large. The investigator opted for this study to

[8]Grönwall 2008.

[9] ibid.

assess the efficiency of the environmental legal system protecting the Sudan with particular reference to the response to environmental change.

Seventh, being a producer of ecosystem services, the environment needs protection at individual, organizational and governmental levels. Therefore, the investigator came to the realization that ecosystem services are not only under increasing pressure of pollution and degradation, but also of depletion through human use, especially in the drylands of the Sudan. It is becoming increasingly clear, internationally and nationally, that legal instruments are required to prevent those ecosystem services from being endangered, or even exhausted. This approach makes addressing issues related to implementation of forestry laws and policies in the Sudan imperative in order to fulfil human needs including sustainable forest management, one of the major areas in which the Sudan has exhausted colossal resources since its birth as country. Bearing in mind that forest resources play a vital role in our lives, and maintaining life on earth, there certainly exists a solid basis for examining the way in which the principles of the concept of sustainable development could guarantee that forest resources are developed and managed sustainably in the country.

Eighth, the current research was prompted because it fell in with the aims of the Finnish active support for the global and national forest policy processes emanating from the United Nations Conference on Environment and Development (UNCED), because of the work of the successive global forums. These are the Intergovernmental Panel on Forests IPF, Intergovernmental Forum on Forests, and, since 2000, the United Nations Forest Forum UNFF. In a context in which the rule of law prevails, it is all the more important to tackle rule of law issues through a community-based approach that takes into account traditional forms and practices of justice, as well as working through statutory channels.

Ninth, lack of mandated mechanism of compliance, implementation and enforcement of relevant laws arouse interest in this research topic: The investigator's interest to conduct this research was motivated by the fact that the Sudan is a country in which mechanisms of customary law have eroded, and communities compete over resources resulting in series of devastating conflicts in some areas of the country. From the investigator's experience in the country, the Sudanese experience major or persistent ineffective implementation and enforcement mechanisms to comply with the provisions of an international agreement etc. This failure of non-compliance undermines confidence in such international agreements and consequently result in significant legal, political and economic concerns. Even though the right to a clean and diverse environment is a constitutional right in the Sudan, there seems to be a general failure and capacity on the side of the Sudanese government that occurred over

time and contributed to lack of a mandated mechanism of compliance, implementation and enforcement of relevant laws.

Tenth, an important factor that provided a foundation for this study was the fact that one of the areas threatened by resource mismanagement is the Sudan's biodiversity. The investigator was prompted to conduct this research on realization that the current regulatory mechanisms fail to protect wildlife species as evidenced by ongoing population declines, habitat loss and fragmentation due to the expansion of human activities into their habitats. The investigator was therefore inspired to conduct this research because of the ineffective protection and management systems that encourage rural people and merchants for illegal collection of fuel wood from natural forest reserves. Having experienced first-hand habitat destruction of savannah and savannah woodlands, and decline in the range of certain animal populations caused by human population expansion, the investigator developed interest in conducting present research:

Eleventh, moreover, as a researcher in the Sudan, the investigator was privileged to have experienced how forest dependent communities often experience patterns of social injustice, environmental damage, displacement, loss of livelihood and access to a healthy environment due to deforestation and forest degradation. For example, during an earlier research in the Sudan, local people claimed that strict control of resources has made it difficult for them to collect fuelwood and non-wood forest products legally, as well as to graze their livestock.[10] The study was driven by the fact that the deprivation of local people of their resources kept them from fulfilling their obligations to future generations.

Twelth, besides, the idea of the present study also originated from the investigator's interest in socio-legal research. The observation of Halliday and Schmidt[11] is that for socio-legal research, the most common source of research ideas is the familiarity with practical situations. The investigator's experiences of being directly engaged in implementing programmes in forestry, agriculture and environmental law for several years, with the Forests National Corporation

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[10] Glover 2005: 65-66; 129.

[11] Halliday, Simon and Schmidt, Patrick. *Beyond Methods – Law and Society in Action*, New York: Cambridge University Press, 2009. (Halliday 2009). (*See also*, Moore, Sally F. "Law and Social Change: the Semi-Autonomous Social Field as an Appropriate Subject of Study." *Law & Society Review* 1973, 7: 719–46; Robson, Colin 2002. *Real World Research*. Blackwell Publishing, part I, pp. 3 – 77;Yin, Robert K., 2014, *Case Study Research: Design and Methods,* 5th Edition, Sage Publications, Los Angeles, chs. 1 and 2.

and universities in the Sudan, and universities elsewhere, including the Netherlands and Finland, shaped his interest in environmental law research. This investigator has worked in various research and management capacities in the field of operations research and management of community-based forestry and agroforestry programmes

1.3.2 How does this study build on existing scholarship in the Sudanese Environmental Law and closely related disciplines?

This section covers the features in Sudanese law worth studying and what similar legal studies exist in the field and what similar studies have looked at and found in relation to the research problem. It explains aspects of previous research on the subject and attempts to build on existing knowledge in the Sudanese environmental law. In this section, I have attempted to analyse the similarities and differences between current research and earlier studies, under two main subjects, namely, "*Enforcement of forest laws"* and "*Effects of foreign law on traditional forest legislation."*

Despite widespread concern over environmental problems in the Sudan, analysis of resource degradation and loss of biological diversity is rudimentary.[12] Conserving the region's biological diversity has become an important public policy issue at international, regional and national levels. Various studies have shown that if the remaining biological diversity is left to disappear due to overexploitation and other socio-economic activities, the region's prospects of achieving economic recovery and political stability will be eroded, because biological diversity (and more specifically, biological resources), is the basis for regional, and national economic development, ecological security and socio-political stability.[13] The causes of resource degradation are numerous and varying in intensity. The process is caused by a combination of factors such as population, harvesting of fuel wood, deforestation, weak enforcement of forest laws, weak afforestation and reforestation, poor management of protected areas and reserved forests and weak institutional control.[14,15] Deforestation, land

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[12] Southgate, Douglas, Sandes, John and Ehui, Simeon. "Resource degradation in Africa and Latin America: Population presure, policies, and property arrangements." *American Journal of Agricultural Economics*, 1990, 71 (5): 1259-1263. (Southgate et al. 1990).

[13] Mugabe, John. Biodiversity conservation in sub-Saharan Africa: Policies, laws and institutions to control/prevent the introduction of invasive alien species. In: Gupta, Modadugu V., Bartley, Devin M., Acosta, Bartley O. (eds.) Use of genetically improved and alien species for aquaculture and conservation of aquaculture and conservation of aquatic biodiversity in Africa. WorldFish Center conference proceedings 68, 113 p. 2004. (Mugabe 2004).

[14] FAO. Sudan National Forestry Policy Statement TCP/SUD/2903 (A) 2006:19.

[15] Glover 2005.

degradation and legal insecurity with respect to land use and tenure are the main threats to forest law compliance in the Sudan.[16]

The subjects of forest law compliance and governance have garnered considerable public attention during the last few decades, in various international forums and processes. While a considerable amount of literature has been circulating on the subject of environmental law and governance, what seems not to be keeping abreast of developments is the connection of national challenges in legal and policy to contemporary bilateral, regional and multilateral approaches to foster sustainable development through regulatory framework. For instance, in the Sudan, limitation of legislation and law enforcement efforts which call for protection of biodiversity and conservation in environmentally sustainable development context, have prompted ill-advised use and misuse of natural resources and unfavourably influenced the biota both at sea and on land. The absence of the necessary coherent, strategic legal and policy frameworks for the conservation and management of resources has resulted in unsustainable exploitation of resources and irreversible loss of biota.

The existence of a high level of non-compliance with the various forest regulatory requirements is becoming increasingly linked to global forest policy issue. As the issue of compliance has been approached at different times from the fields of Social Sciences,[17] Political Economy (of institutions),[18] and Psychology,[19] a considerable number of schools of thought, theories and descriptions have been developed to explain related issues. However, an important challenge facing research on environmental law enforcement and compliance in forestry in the Sudan, is the lack of an adequate analytical framework for the study of forest law compliance.

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[16] FAO/IITO

[17] Cialdini, Robert B. & Trost, Melanie R. Social influence: Social norms, conformity, and compliance. In: Gilbert, Daniel Todd, Fiske, Susan and Lindzey, Gaarner (eds.). The handbook of social Psychology, (4th edition) vol. 2. New York: McGraw-Hill, 1998: 168-180.

[18] Ostrom, Elinor. Governing the Commons. The Evolution of Institutions for Collective Action. Cambridge University Press, Cambridge. 1990:10, 44, 51. (Ostrom 1990).

[19] Tyler, Tom R. & Jost, John T. Psychology and the law: Reconciling normative and descriptive accounts of social justice and system legitimacy. In: Kruglanski, Arie W. & Higgins, E. Tory (eds.). Social psychology: Handbook of basic principles, second ed. New York: Guilford, 2007: 765, 808-809.

Despite the foregoing facts, research into forestry legislation[20] and forest law in particular, compliance is sparse and significant uncertainty still exists about the degree to which inappropriate and contradictory forest laws, and weak law enforcement and compliance impact on forest dependent rural livelihoods and national economies and how these constraints can best be tackled in the pursuit of sustainable forest management (SFM).[21] An evaluation of the effectiveness of an environmental legal system is relatively rarely attempted and this study attempts to fill this gap.

The current study endeavours to comprehend the sources of enforcement and non-compliance in forestry in the Sudan. It emphasises factors related to global markets and trade.[22] However, the existing research and knowledge from the field of Environmental Law, dealing with factors influencing enforcement and compliance, emphasizing legal, governance and socio-economic issues, such as enforcement mechanisms with reference to forest law in the Sudan, is presently unexplored. This study attempts to clarify the matters relating to forest law compliance and governance and to help the Sudan to tackle these concerns. It also examines the consequences of the regulation of resource degradation or deforestation as "factual consequences" and therefore form socio-legal aspects of the study. The current study constitutes an attempt to fill this gap as discussed.

In the Sudan, current forest laws limit equity in access and rights to forest resources and forests of forest dependent people. For several reasons, rural communities often face problems with getting their rights of ownership, land tenure security as well as access and use in forests regularised. Existing

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[20] "Traditional forest legislation" as used in this study refers to unwritten social and traditional norms, common rule or practice, and customary and traditional rights pertain to forests on a piece of land over which the head of the community has power and authority to allocate use rights to its subjects; and that have formed a fundamental part of accepted and expected behavior in a community etc. as a legal obligation.

[21] World Bank. Sudan Peace –building for Development Project (SPDP), Analysis of Natural Resources Management, Legal and Policy Framework and Conflict (Draft Final Study Report), Sudan. 2016.

[22] Contreras-Hermosilla, A. & Peter, E. Best Practices for Improving Law Compliance in the Forestry Sector. FAO Forestry Paper 145. Food and Agriculture Organization of the United Nations (FAO), Rome, 2005.112 p. See also: World Bank. Strengthening Forest Law Enforcement and Governance: Addressing a Systemic Constraint to Sustainable Development. The World Bank Report No. 36638 – GLB. Washington, DC. 2006, 77 p.; Blaser, J. Forest law compliance and governance in tropical countries. A region-by region assessment of the status of forest law compliance and governance, and recommendations for improvement. FAO and ITTO, 2010. 27 p.

enforcement laws and regulations have too often proven themselves to be unjustifiably, illegally and irregularly bias towards small-scale users and may disregard the political economy encompassing illicit forest use. This study attempts to clarify these realities.

Faced with environmental problems and challenges for sustainable development[23], this study focuses on the Sudan, a country once colonized by Britain. This study was designed to illustrate the very different legal and institutional mechanisms that have been used or being used to protect and manage natural resources, in particular forests during the pre-colonial, colonial and post-colonial era. This study brings together ways of understanding the evolution and development of pre-colonial and colonial power issues within forest conservation policies, legislation and practices in the Sudan. In this connection, it provides analysis of the effects of foreign law on legal institutions, in particular, aspects of transplantation of forest policies and legislation during the colonial period in the Sudan. As such it examines the impact in various respects of the removal of control over, and access to, environmental resources by local communities.

Forestry in colonial Sudan came down on forestry as "public property". The existing legal system of the Sudan was derived from the British colonial legal tradition. Laws that were enacted in the colonial period reflect a state-centric approach to forests. Colonial laws empower the state to exercise absolute state control of the forest resource base and regulate rights of citizens. Colonial laws strictly regulate access to community forest resources, which consequently led to the marginalization of local populations. The Central Forest Act (1932)[24] and

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[23]Sustainable development describes development that is scientifically and technologically appropriate, economically viable, environmentally friendly, ethically and socially equitable. This concept was reported in a report titled "Our Common Future," also known as the Brundtland Report, produced by the World Commission on Environment and Development (WCED) (United Nations General Assembly. Report of the World Commission on Environment and Development: Our Common Future. Oslo, Norway: United Nations General Assembly, Development and International Co-operation: Environment. 1987. (Transmitted to the General Assembly as an Annex to document A/42/427 - Development and International Co-operation: Environment). (See also: World Commission on Environment and Development, Our common future. Report of the World Commission on Environment and Development (1987). Oxford: Oxford University Press, 1987). (WCED 1987).

[24] Amendments (Consequential to the Provincial Administration) Act 1961. Legislative Supplements, 23 (1961), s.3(31).

the Royalties Act (1933),[25] extended government ownership over forests, allowing the colonial government access to wood fuel for the development of transportation. Environmental protection and conservation laws that emerged in the 1970s and 1980s also extended government entitlement to forests

Other gaps in these centralized forest management laws include the lack of active involvement of community and citizens in forest management and governance, which is an ancient traditional form of sustainable forest management in the Sudan. Consequently, traditional knowledge, skill and coping capacity of the community in addressing and managing environmental changes were not adequately integrated into developmental processes.

Despite the foregoing considerations, research into the forestry legislation and influence of foreign law (legal transplantation) on traditional forest legislation in Africa,[26] is sparse. To date, the body of literature dealing with legal transplants has centred either around the phenomenon of transplants of entire legal orders (e.g., Watson;[27] Kahn-Freund;[28] Watson;[29] Watson;[30] La Porta;[31, 32];

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[25] Amendments (Consequential to the Provincial Administration) Act 1961. Legislative Supplements, 23 (1961), s.3(31).

[26] "Traditional forest legislation" as used in this study refers to unwritten social and traditional norms, common rule or practice, and customary and traditional rights pertain to forests on a piece of land over which the head of the community has power and authority to allocate use rights to its subjects; and that have formed a fundamental part of accepted and expected behavior in a community etc. as a legal obligation.

[27] Watson, Alan. "Comparative Law and Legal Change," *Cambridge L.J.* 1978, 37: 313-315. (Watson 1978).

[28] Kahn-Freund, Otto. "On Uses and Misuses of Comparative Law." *The Modern Law Review* 1974, 37 (1): 1-27. (Kahn-Freund 1974).

[29] Watson, Alan. *Legal Transplants: An Approach to Comparative Law* (2nd edn.), University of Georgia Press 1993. (Watson 1993).

[30] Watson, Alan. "Aspects of Reception of Law," *American Journal of Comparative Law*, 1996. 44: 335. (Watson 1996).

[31] La Porta, Rafael, Lopez-de-Silanes, Florencio, Shleifer, Andrei and Vishny, Robert. "Law and Finance." *Journal of Political Economy*, 1998:106:1113-1155. (La Porta et al. 1998).

[32] La Porta, Rafael, Lopez-de-Silanes, Florencio, Shleifer, Andrei and Vishny, Robert. "The quality of government." *Journal of Law, Economics, and Organization,* 1999. 15(1): 222-79. (La Porta et al. 1999).

Berkowitz et al.[33]) or with when these transplants are expected to be successful or not (e.g., Schlesinger et al.;[34] Glaesar and Schleifer;[35] La Porta et al.[36]).

Hardly any attempts have been made to date in the Sudan to document a comprehensive review of forestry legislation and assess specifically the effect of foreign (received) law on its traditional forest legislation. The few similar earlier regional studies carried out by John Wigmore focus on a comprehensive geographical classification of legal systems in Africa: Wigmore's "world-map of present day legal systems," - based on the political boundaries of 1923.[37] Likewise, Peter H. Sand[38] in his work on exploring the interfusion of legal systems in the modern independent states of Africa, attempts to place the process in a comparative perspective, and to analyse some of its causes and effects.[39] Orsinger's [40] analysis of two Conventions of the colonial powers for the protection of Africa's fauna (1900) and fauna and flora (1933) [41] may be

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[33] Berkowitz, Daniel, Pistor, Katharina and Jean-Francois, Richard. "Economic development, legality and the transplant effect." *European Economic Review,* 2003a, 47(1):165-95. (Berkowitz et al. 2003a).

Berkowitz, Daniel, Pistor, Katharina and Jean-Francois, Richard. "The Transplant Effect." *The American Journal of Comparative Law*, 2003b. 51: 163- 191. (Berkowitz et al. 2003b).

[34] Schlesinger, Rudolf B, Baade, Hans W., Herzog, Peter E. and Wise, Edward R. *Comparative Law: Cases, Text, Materials* (6th ed.), Foundation Press, 1998. (Schlesinger et al. 1998).

[35] Glaeser, Edward and Shleifer, Andrei. "Legal Origins." *Quarterly Journal of Economics*, 2002: 117. (Glaeser 2002).

[36] [36] La Porta, Rafael, Lopez-de-Silanes, Florencio, Shleifer, Andrei. "The Economic Consequences of Legal Origins," *Journal of Economic Literature*, 2008. 46(2): 285–332. (La Porta et al. 2008).

[37] Wigmore, John H. *A Panorama of the World's Legal Systems,* St. Paul, Minn.; West Pub. Co.1928. (Wigmore 1928).

[38] Sand, Peter H. "Current trends in African legal Geography: The interfusion of legal systems." *African Law Studies* 1971, 1(5): 1-24. (Sand 1971).

[39] ibid.

[40] Orsinger, Victor J. "Natural resources of Africa: Conservation by legislation." *African Law Studies* 1971: 5(29): 29-55. (Orsinger 1971).

Victor J. Orsinger [Orsinger, Victor J. "Natural resources of Africa: Conservation by legislation." *African Law Studies* 1971: 5(29):29-55. (Orsinger 1971)],

[41] International Convention Concerning the Preservation of Wild Animals, Birds and Fish in Africa signed in London on May 19, 1900; Convention Relative to the

mentioned; the 1968 Organization of African Unity (OAU) Convention on the Conservation of Nature and Natural Resources, designed for independent Africa, [42] and a treatise on the reception and impact of common law on African law by Nwabueze.[43]

Even fewer studies are known at the country level, where findings highlight the work of Elias regarding the impact of English law on customary law in Nigeria in matters of family, land tenure, inheritance, succession and other associated areas;[44] Allott's treatise on African law, with special reference to the law of Ghana;[45] a comprehensive study by Ekow Daniels, a prominent indigenous African scholar of English and African law study on the influence of equity as distinguished from the common law;[46] and Guttmann's article on the multiplicity of law in the Sudan,[47] using a historical approach to trace the reception of Common Law in the Sudan. [48]

When only a few of the countries in sub-Saharan Africa's population has been studied in terms of research on the effect of foreign law (or received law) on traditional forest legislation, there is a gap in both knowledge and literature. There is a gap in terms of lack of knowledge of the impact of the received law on institutional structures i.e. the whole of established law custom and practice of relevance to the forest sector in the economies of the Sudan; not adequately studied. There is also a gap in terms of review of previous works on the legal instruments applied by the Sudan used in protecting natural resources, in this case, forests; not adequately studied.

It was against the foregoing backdrop that the current study seeks to understand the evolution and development of pre-colonial and colonial power

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Preservation of Fauna and Flora in the Natural State signed in London on November 18, 1933.

[42] Organization of African Unity (OAU) Convention on the Conservation of Nature and Natural Resources, 1968.

[43] Nwabueze 1973; *see also,* Mwalimu 1988.

[44] Elias, Taslim. *The Impact of English Law on Nigerian Customary Law*. 1960 (reprint of the 1958 Lugard Lectures. Ministry of Information, 1960) (Elias 1960); *see also*, Mwalimu 1988.

[45] Allott 1960.

[46] Daniels, Ekow W. C. "The influence of Equity in West African Law," International *& Comparative Law Quarterly,* 1962: 11(31).

[47] Guttmann, Egon. "The Reception of the Common Law in the Sudan," *International and Comparative Law Quarterly* 1957: 6(401). (Guttmann 1957).

[48] ibid.

issues within forest conservation policies, legislation and practices in the Sudan. In this connection, it provides an analysis of the effects of legal transplants on legal institutions, in particular, aspects of transplantation of forest policies and legislation during the colonial period in the Sudan. As such it examines the impact in various respects of the removal of control over environmental resources and access to them by local communities. In this connection, the impact of the introduction and strengthening of the concept which led to the enclosure of common areas,[49] ancestrally managed in a sustainable way by local communities and reduced access to their resources,[50] for the benefit of the state and private parties.

This current study covers new ground in that it spells out an agenda for managing the exploitation of forests through sustainable development principles. The overall purpose of the research is to contribute to the filling of gaps in

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[49] Tache, Boku. Pastoral Land Use Planning and Resource Management in Southern Oromia: An Integrated Landscape Approach, Final Report Submitted to SOS Sahel Ethiopia, Addis Ababa. 2009:25 (Tache 2000).

[50] In the 17th century there was in Western Europe an interesting discussion of philosophers and lawyers about two kinds of property rights, in particular in relation to land. The English philosopher John Locke, said to have fathered the exclusive kind (a right without restrictions, lawfully excluding everybody else from using or enjoying it), Ch. 5 of the Second Treatise of the book edited by Laslett Peter - Locke: *Two Treatises of Government*. Cambridge: Cambridge University Press, 14th Reprint, 2013. (Laslett 2013): *See also:* McPherson, Crawford B. (ed.). *John Locke: Second Treatise of Government*. Indianapolis: Hackett, 1980. Print: Chaprt V; XVI – XIX). (McPherson 1980).

In this connection Locke recognized only everybody's right to *use* the God-given land, and no more of it than he needed to produce for his own needs. The Commoners for ages used the land and fishing grounds that way. Making contracts between themselves, also on behalf of conservation for future generations, while enjoying *the right, not to be excluded* from the use of naturally common ground. Until the *Enclosures by the landowners* put an end to it, because industrial capitalism had made sheep keeping profitable and they had to keep up with the new rich of manufacture. The resulting poverty on the land was felt by moving to industrial towns and the sea. A Poor Law had to provide for those who stayed behind. Had the old ways (everywhere) persevered, populations would have remained restricted by their natural resources (Macpherson 1980; Laslett 2013).

The Indians might still be hunting bison on the North American Plains, etc. Instead, industrial agriculture and forestry, made possible and necessary by the industrial revolution, have been introduced willy-nilly all over the world.

present knowledge and to draw out recommendations for economic, social and environmental development in the forest sectors of the Sudan. In addition, it assesses the transplant effects of a specific legal definition on traditional forest legislation in the Sudan.

This study attempts to fill the academic gap of investigating the environmental enforcement mechanisms (actions taken in case of non-compliance with environmental law) in relation to compliance with environmental treaty obligations. The findings therefore contribute to a better understanding of the implementation of international forest-related commitments in the Sudan; various international instruments and processes for sustainable development of forestry and its contribution to rural development. It also fosters a better common understanding of legislation and policies relevant to forests and highlights sustainable forest management dialogue on implementing forest-related issues and the Sudanese forest policy processes, and strategies for the implementation of forest-related agreements

The goal is a successful partnership with the community, concerning who has clear rights to and responsibilities for their natural resources, supported by an enabling environment[51]/policy and legislative framework; the government facilitating the process, while retaining regulatory control of last resort. This study sets out to collect and analyse existing policies, law and practice in the Sudan, identifying best practice and looking for the optimal balance between community empowerment and state control. Identifying the rights and responsibilities of different stakeholder groups will be key to it, as well as the incentives necessary to achieve both.

The next section spells out the aims, research questions, hypotheses and an overview of research methodology.

[51] Chasek 2000: 265.

1.3.3 Aims, research questions, hypotheses and methodology

1.3.3.1 Introduction

Suggestions have been proposed in the context of ecological sustainability to be the principal reference point of Environmental Law and that the sustainability of ecosystems should become one of the central principles of law worldwide.[52] In addition, human development and natural ecosystems are closely interconnected and it is important to bear in mind that ecosystems are dynamic and erratic. Social-ecological resilience theory argue that adaptive governance systems, also called adaptive co-management systems of resources must be adaptive and based on collaboration, trust building between and among professional foresters, local people and decision-makers in the integration of a variety of public concerns or interests into decision-making. The next paragraph spells out the aims, research questions, hypotheses and methodology of the study.

1.3.3.2 Aim and research questions of the study

The aim of the study generally is to examine forest resources management policy actions and legislation in the Sudan. The study examines the legal analysis of regulations in the Sudan with special reference to the forest sector, within the context of forest regulation and interpretation of the regulation.
More specifically, the aim of the study is to:

(a) Examine and analyse the mechanisms used to enforce international environmental law for the management, conservation and protection of forest resources;

(b) Clarify the matters relating to forest law enforcement by examining a wide range of laws and conventions that have an indirect impact on forest conservation and development, and to help the Sudan tackle these concerns. It

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[52] Tegner Anker, Helle and Olsen, Birgitte Egelund, (Eds.). Sustainable management of natural resources. Legal instruments and approaches. Cambridge: UK. 2018: 4, See also: Gaines, Sanford. Reimaging Environmental Law for the 21st Century. Environmental Law Reporter. 2014, Vol. 44 p.10188 -10215.

explores the issue of enforcement from the perspective of its relationship with environmental laws. In this connection, it attempts to identify approaches and strategies to strengthen and facilitate legal enforcement mechanisms for the management, conservation and protection of forest resources, in the context of sustainable development. The study gives concrete analysis of legal material and examples of regulation that have been enforced at different times.

Secondly, while it is obvious that colonial law in the 19th century put aside relevant traditional forest law, there needs to be further investigation into the extent to which this occurred, and by which law this has been continued since decolonization, and how far this should be upheld as from today. It is argued that the investigation of the difference between the colonial and traditional forms of forest management and utilization, is a successful path to expose important power relations in the forestry sector in colonial Sudan. In this regard, the study attempts to explore the impacts of foreign law (legal transplants) during the colonial era on forest resources development; modern conservation policies, legislation and practices in the Sudan. More specifically, the aim of the study is to: *Explore the influence of colonial pathways and new trends on how a diversity of actors respond to those changes and mobilize to govern their own forest resources better.*

The following research question attempts to address the second research aim: *What was the forest policy and legislation in Sudan during the colonial era? What changes, if any, occurred or should have occurred? What factors, if any, facilitated those changes or were a hindrance to them? Have those changes been for the good or otherwise, for the development of forest policies and laws in the Sudan?*

Thus, the study examines how the colonial situation (forest management) led to certain limitations on and opportunities for the people of the Sudan and governmental forest management; In order to understand the situation at stake, this research maps out the various forces at work, including pre-colonial histories; colonial and post-colonial policies and legislation related to forestry.

Thirdly, the study aims to explain how the Sudanese nation and local forest-dependent communities living adjacent to forests work through the command and control system expressed in these forests and arising from legislation and policies. The study specifically aims *to identify legal and policy tools to support ecosystem management strategies and appropriate arrangements for the equitable sharing of benefits arising from ecosystem goods and services*.

The following research question attempts to address the second research aim: *Looking into the future, what may be expected, and how could policy and legislation regarding resources be made better than today?*

This study explores the ways in which shifting an emphasis on the former, hierarchical, with highly centralized approach in decision-making in relation to forest conservation and management, and little room for delegation to one that fully engages the participation of local communities and smallholders to openly discuss and share their ideas. This study attempts to iidentify the legal and policy tools concerning public participation used in the country. It also attempts to locate problems and find solutions to them. It examines the consequences of the regulation of forest resource degradation or deforestation as "factual consequences" and this formed socio-legal aspects of the study.

1.3.3.3 Hypotheses of the study

The hypothesis of the current study is that:

(a) The persistence of environmental degradation in sub-Saharan Africa (including the Sudan), is attributed to the failure of environmental enforcement mechanisms or their inadequacy (actions taken in case of non-compliance with environmental law) in relation to compliance with environmental treaty obligations;
(b) In order for policies to be legitimate, public participatory planning as a management tool for forest resources needs to be prioritized and insured and
(c) In the Sudan, the transplant effect has a substantial negative impact on forest resources development via its impact on law.

1.3.3.4 Methodology

The current study employed qualitative content analysis (QCA) to gather data and analyse the data collected. QCA affords one a conceptual understanding of the major legal problems associated with environmental protection, more broadly, sustainable development in the Sudan. The investigator held the view that the method of QCA provides us a well-rounded picture of the existing legal and policy framework for natural resources management policy actions and legislation for addressing resource management and resource-based conflict in the Sudan.

This study employed Qualitative content analysis (QCA) as methodological approach in data collection and analysis. QCA was employed as methodological

approach in identifying the legal mechanisms used to enforce international law and their distinctions in the Sudan. The QCA method also served in conducting legal analysis of regulations in the Sudan with special reference to legislative materials related to the nine main law[53] areas,[54] namely grassland ecosystems, land degradation/desertification, water management and soil conservation, water resources, forests and woodlands, agriculture productivity, land administration, environmental protection and environmental impact assessment (EIA), and understanding of the issue under investigation,[55] within the context of forest regulation and interpretation of the regulation.

As Withrow points out, content analysis allows a "*nuanced and in-depth understanding"* [56] of the issue at stake. QCA allows one to focus on the environmental and sustainability issues that are important for appropriately safeguarding the environment for the survival of humanity's quality of life on earth and stresses the usefulness of environmental legal systems. Based on the foregoing considerations, QCA is an appropriate method in the management of the drylands of the Sudan. Maintaining sound ecosystem functioning is fundamental for sustaining human well-being and livelihoods.

The decision to employ QCA was also influenced by the fact that the investigator wanted to assess legal material in a replicable manner. QCA was the

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[53] *'Law' in this context means a body of law enacted by a legislature, e.g., an act, decree, regulation, code or other formal legal instrument that is legally enforceable. It can include agreements or covenants that are expressed to be legally binding*" (Qun, Du and Ian Hannam (Eds.). Law, Policy and Dryland Ecosystems in the People's Republic of China. Gland, Switzerland: IUCN. 2011: 9 (Qun & Hannam 2011:9).

[54] Qun, Du and Ian Hannam (Eds.). *Law, Policy and Dryland Ecosystems in the People's Republic of China.* Gland, Switzerland: IUCN. 2011: 8. (Qun and Hannam 2011:8).

See also: Hannam, Ian and Ben Boer. Legal and institutional frameworks for sustainable soils: A preliminary report. No. 45. IUCN, Gland, Switzerland and Cambridge, UK 2002:36 (i.e. Section 4.2 "Soil Legislation Framework Categories"). (Hannam & Boer 2002:36).

[55] Dhir, Tekjart Aaron A. *Challenging Boardroom Homogeneity: Corporate Law, Governance and Diversity*. Cambridge University Press: NY. 2015: 178 (Dhir 2015:178).

[56] Withrow, Brian L. Research methods in crime and justice. Routledge: UK. 2014:301 (Withrow 2014: 301).

method used as it provides objective and scientifically verifiable findings;[57] it is a replicable method that allows one to analyse enormous volumes of data or series of texts, including legal texts e.g. legislation[58] to the context of their use[59] and to draw valid inferences, and from an objective stance[60]

Content analysis was incorporated in this study as it enhances legal research.[61] It enables in-depth analysis of the content of legal material. The QCA is a method that is effective in addressing legal questions owing to the availability of a specific approach to studying legal material. Furthermore, QCA responds to specific questions in relation to the frequency of certain practices as well as the relationship between various aspects of the phenomena under study.

The multidisciplinary research approach dimension of the topic was what also aroused the investigator's interest in using the method of QCA. QCA is a method that provides new insights into all these fields of study by combining and applying multidisciplinary research to address key legal or environmental questions or issues of Environmental Law. Perhaps the most important aspect of QCA was to examine natural resources management policy actions and legislation for addressing resource management and resource-based conflict in the Sudan.

In addition, QCA (a qualitative research methodology) became imperative to examine the strength and varying feasibility of legal transplants during the colonial era in relation to their impact on natural resources development, modern conservation policies, legislation and practices in the Sudan. QCA calls for meaningful integration of disciplines of social sciences in conservation science, policy, and practice. Examples of conservation social sciences include *environmental governance, environmental education and environmental law."*[62]

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[57] Salehijam, Maryam. The Value of Systematic Content Analysis in Legal Research *Tilburg International Law Review*. (2018) 23(1);5

[58] Salehijam, Maryam. The Value of Systematic Content Analysis in Legal Research *Tilburg International Law Review*. (2018) 23(1):1 (Salehijam, 2018:1).

[59] Dhir, Tekjart Aaron A. *Challenging Boardroom Homogeneity: Corporate Law, Governance and Diversity*. Cambridge University Press: NY. 2015: 177 (Dhir 2015: 177).

[60] Ibid.

[61] Salehijam, Maryam. The Value of Systematic Content Analysis in Legal Research *Tilburg International Law Review*. (2018) 23(1):5 (Salehijam, 2018:5).

[62] Bennett, Nathan J., Robin Roth, Sarah C. Klain, Kai MA Chan, Douglas A. Clark, Georgina Cullman, Graham Epstein et al. "Mainstreaming the social sciences in conservation." *Conservation Biology*, 2017, 31(1): 58 (Bennett et al. 2017:58).

1.4 Synopsis of the dissertation

The dissertation is structured in six chapters:

Chapter 1 spells out the steps in the introduction of the dissertation manuscript. It begins with background information which outlines the environmental service and product roles of forests. It presents challenges facing environmental changes in sub-Saharan Africa, in particular, the Sudan. It discusses the rationale (justification) for the study being conducted by summarizing reasons for choosing the research topic, contribution of current research to existing scholarship. It also outlines the aims of the research, buttressed by a set of research questions and hypotheses and a brief introduction to the use of qualitative content analysis (QCA) methodology and data analysis techniques used in the study.

Chapter 2 presents the research method ("Qualitative content analysis") used in data analysis. Research methods involve the use of data derived from primary sources of Environmental Law and secondary sources. The data were analysed by means of qualitative content analysis (QCA). It also discusses the theoretical background that guided the research methodology. The chapter explains the main reason for the choice of method as well as data analysis and procedures.

Chapter 3, which forms the focal part of the study, explains the main aim of the dissertation. A succinct analysis has been undertaken of the forest conservation which forms the basis for a method by which the bindingness of norms of applicable legal mechanisms and implementation tools. This chapter gives an overview of environmental law enforcement mechanisms, international conventions and agreements with respect to enforcement efforts. This chapter explains the theoretical context of the research within the fields of Environmental Policy Analysis and Law. It discusses important elements in its general introduction to this issue, with attempts to link this to the specific problems of forest management in the Sudan. The general introduction of environmental law enforcement mechanisms is followed by a description of the legal instruments for the protection of the environment in the Sudan. The focus of this discussion is limited to national environmental instruments.

The chapter presents some important elements in the Sudan's environmental policy and law, namely Environmental Impact Analysis (EIA) experience pursuant to the 2001 Environment Protection Act, the environmental permitting and licensing systems, public awareness and participation, conservation orders

and financial incentives. It is mainly a presentation of the relevant texts/rules. These elements are, linked to most of the issues related to aspects of forest management.

The last part of the chapter provides short introductions to the following instruments for the protection of natural resources: environmental impact assessment (EIA), environmental permitting and licensing systems, and public awareness and participation. There are clear attempts to link these presentations to the issue of forests in the Sudan. This chapter presents the various regional/international conventions and agreements to which Sudan is a party. It presents some elements of Sudan's implementation of these, i.e. the 1986 Sudan Government, Wildlife and National Parks protection Act.

Chapter 4 begins with a brief introduction to the concepts and discussions related to colonialism and transplantation of law from one jurisdiction to another. The chapter presents a discussion of the pre-colonial experiences in relation to adoption and impact of legal transplants. The chapter also provides background information on the history of the colonization of African countries, and the problems inherent in the new situation after independence, with particular reference to forest management in the Sudan. This chapter explores major elements in the development of forest law in the Sudan: It treats the issue of management of natural resources in sub-Saharan Africa, and in particular land use and the management of forests in the Sudan.

Taking as its starting point the general problem of forest protection/deforestation in Africa, it describes the major elements in the development of forest law in the Sudan: From before the colonization, during the colonization by the British from 19th century to independence in 1956, and elements of the development of the forest law after independence. The chapter presents the main aspects of the land/forest policy and law in the Sudan during pre-colonial period with a system of communal forests, managed mainly for income generation for and by the local communities, and the changes under British colonial rule, from before the colonization, during the colonization by the British from late 19th century, to independence in 1956, and elements of the development of the forest law after independence.

Forests and forest activities became colonial property and under colonial authority and with the exercise of police power, this contradicted and broke up the traditional customary law in many ways. It explains the major impacts colonization had on the situation of forest-dependent people and communities. The chapter discusses the pre-colonial era when the forest was regarded as a common resource and its management was mainly in the hands of each local community, tribe or kingdom, without formal property rights in the Western

sense being attached. After independence in 1956, the colonial system was continued to some extent, but some reforms were made providing for greater participation by the local community, and more responsibility.

It explains the potential impact of received law on the Sudanese traditional forest law. These changes included the establishment of forest reserves under ownership of the government in the early 1900s and expropriation of land and the introduction of private property to British settlers. These changes disrupted the customary communal management and ownership of land. This chapter provides an interesting and valuable explanation of the conflict between the discourse of forestry as a state or public property on the one hand, and the traditional forms of forest management and utilization on the other."

This chapter also provides examples in brief from around the world where the indigenous peoples have been hit and partly evicted by industrial development. Chapter Four describes the main elements of the post-colonial forest management legislation in the Sudan. It discusses in detail the policy of decentralization in the aftermath of British colonial rule, key trends in the Sudan's forest policy and legislation since the mid-1980s and factors that facilitated the trends of the Sudan's forest policy and legislation in 1932, 1986 and 1989. The main point is that although some of what was introduced by the British at a general level has been kept since independence, new forestry legislation has meant "a major shift" in the recognition of the role that local people can play in managing natural forests, and through the establishment of new types of forest ownership. The Forest Act 1989 "secures customary, non-acquired rights and ownership, thus conceptualizing the philosophy of community forestry".

The last section of *Chapter 4* starts with a discussion of attempts to address environmental concerns in the Sudan. This aspect of the study is important, as it sheds light not only on the various interventions instituted to protect the environment in the Sudan, but also, the underlying principle of environmental protection in the country. This last section contains elements from Sudanese law. It briefly presents problems which have to do with forestry in the Sudan. A section on "Land law reform" deals mainly with international human rights instruments relative to indigenous peoples' right to land. This researcher's point here seems to be that Sudan, although acknowledging indigenous peoples and the protection of their traditional lands, lacks an adequate legal framework that recognizes their culture and way of life.

Chapter 5 embodies the conclusion of the study. This Chapter sums up the findings related to the principal aims of the study, in particular the important role played by law and legal instruments in achieving these goals: How international

obligations prescribe common commitments and measures to attain them; how national legislation provides a framework to regulate certain behaviour, to provide incentives to achieve certain results, and to set appropriate institutions in place. In this short concluding chapter, the author highlights some of the findings in the dissertation with regard to environmental issues in the Sudan.

The next chapter spells out the method of analysis employed by the study.

CHAPTER 2

RESEARCH DESIGN: MATERIAL AND METHODS

2.1 Introduction

The qualitative content analysis (QCA) methodology was employed in data collection and analysis bearing in mind the legislative materials related to the nine main law[63] areas,[64,65] namely grassland ecosystems, land degradation/desertification, water management and soil conservation, water resources, forests and woodlands, agriculture productivity, land administration, environmental protection and environmental impact assessment (EIA), and understanding of the issue under investigation, [66] within the context of forest regulation and interpretation of the regulation.

The research required checking the deforestation and resource degradation, and impacts on local people in the past few decades. The qualitative content analysis methodology was used to assess "essential elements"[67] derived from an assessment of legal and ecological principles aimed at understanding the

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[63] *'Law' in this context means a body of law enacted by a legislature, e.g., an act, decree, regulation, code or other formal legal instrument that is legally enforceable. It can include agreements or covenants that are expressed to be legally binding"* (Qun Du and Ian Hannam (Eds.). Law, Policy and Dryland Ecosystems in the People's Republic of China. Gland, Switzerland: IUCN. 2011: 9 (Qun & Hannam 2011:9).

[64] Qun, Du and Ian Hannam (Eds.). *Law, Policy and Dryland Ecosystems in the People's Republic of China.* Gland, Switzerland: IUCN. 2011: 8 (.Qun and Hannam 2011:8).

[65] Hannam, Ian and Ben Boer. Legal and institutional frameworks for sustainable soils: A preliminary report. No. 45. IUCN, Gland, Switzerland and Cambridge, UK 2002:36 (i.e. Section 4.2 "Soil Legislation Framework Categories").(Hannam & Boer 2002:36).

[66] Dhir, Tekjart Aaron A. *Challenging Boardroom Homogeneity: Corporate Law, Governance and Diversity*. Cambridge University Press: NY. 2015: 178 (Dhir 2015:178).

[67] Hannam, Ian. Legal and Institutional Framework for the Management of Water and Land in South
East Asia and the People's Republic of China: A Method. Research Report No. 73. Colombo, Sri Lanka:
International Water Management Institute.2003: 14 -18;.

marginalization of indigenous people and growth and development of state forestry in the Sudan. The combination of legal and ecological principles plays an important role in achieving the commitment to sustainable management of resources including land and forests. The UNCCD covers such "*essential elements*" [68] as " '*national strategies*' …"[69] in attempts to attain international targets in fighting desertification, while at the national level, the Sudan national Law[70] covering prevention and combatting desertification comprises comparable requirements to realize national goals in preventing or controlling desertification.[71] This study was designed to illustrate the very different legal and institutional mechanisms that have been used or are being used to protect and manage natural resources, in particular, forests in the Sudan. In terms of essential elements, the study assessed and reviewed the capacity of a number and type of important existing laws, policies and institutional elements in attempts to assess the level of implementation of sustainable forest management in the Sudan. In view of the aforementioned, the study considered the assertion of state monopoly right as an important element.

The Forest law of the Sudan was used in examining the legal framework, in addition to major strategies employed in forest conservation. The QCA methodology enabled tracing the evolution of the Sudan's land tenure systems from history and with reference to three major governance eras, namely: the Pre-colonial era (prior to the 1890s), which saw forest land mostly dominated by the rule of traditional leaders who were entrusted with the responsibility of allocating resources such as land and forests; the colonial era (1890s – 1953) was characterized by foreign law through which the ownership of resources such as land and forests were usurped by the British administrators who took over the country as the sovereign power. A basic characteristic of colonial rule was the change in circumstances whereby the proprietary rights of land in the

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[68] Qun, Du and Ian Hannam (Eds.). Law, Policy and Dryland Ecosystems in the People's Republic of China. Gland, Switzerland: IUCN. 2011: 9 (Du & Hannam 2011:9).

[69] Qun, Du and Ian Hannam (Eds.). Law, Policy and Dryland Ecosystems in the People's Republic of China. Gland, Switzerland: IUCN. 2011: 9 (Du & Hannam 2011:9).

[70] 'Law' in this context means a body of law enacted by a legislature, e.g., an act, decree, regulation, code or other formal legal instrument that is legally enforceable. It can include agreements or covenants that are expressed to be legally binding (Qun, Du and Ian Hannam (Eds.). Law, Policy and Dryland Ecosystems in the People's Republic of China. Gland, Switzerland: IUCN. 2011: 9 (Du & Hannam 2011:9)

[71] Qun, Du and Ian Hannam (Eds.). Law, Policy and Dryland Ecosystems in the People's Republic of China. Gland, Switzerland: IUCN. 2011: 9 (Du & Hannam 2011:9).

Sudan were vested in the crown or to the sovereign by the colonial power and the forests came under the sovereignty of the state, which implied a move towards centralization; the independence and post-independence era was characterised by the legacy of the colonial era (colonial bureaucracy) under which the policy of state control of forests was further stiffened and the traditional users were more and more marginalised and considered as threat to forest management.

Additionally, the agricultural and wildlife sectors which form important sectors of the economy, governed by statutes and have an impact on forest conservation were also investigated to determine the extent to which the law holistically addresses forest Conservation issues in relation to these sectors.

This chapter covers the theoretical background of the research method used in this study. It defines the key concepts and presents the research design and the viewpoint from which the topic is examined. The chapter also highlights the main reasons for the choice of method as well as data analysis and procedures.

2.1.1 The method of qualitative content analysis: Theoretical background and procedures

The current study employed the "qualitative content analysis (QCA)" method, considering its quality to portray the content of the textual information by identifying common patterns and themes in the text being analysed. In this dissertation, QCA is defined as a research method for the analysis of the content of text data through the systematic reliance on coding and categorization of data in assessing and grouping of written text in themes.

It is an approach employed in the social sciences to study the content of text data[72] or the analysis of documents and texts (which may be printed or visual) that seeks to quantify content in terms of predetermined categories and in a systematic and replicable manner.[73] A flexible method can be applied to a variety of media. It is usually treated as a research method because of its distinctive

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[72] Hsieh, Hsiu-Fang and Shannon, Sarah E. Qualitative Content Analysis. *Qualitative Health Research*,
2005, 15 (9); 1278 (Hsieh & Shannon 2005: 1278).

[73] Babbie, Earl R. *The Practice of Social Research* (12th ed.). Wadsworth: Cengage Learning, 2010: 530. (Babbie 2010).

approach to analysis.[74, 75] This method involves combining a disciplined emphasis on legal subject matter with a presumption that other researchers would have the chance to replicate the research results obtained. As Dhir points out, QCA aims to *"make replicable and valid inferences from texts (other meaningful matter) to the contexts of their use"*[76] QCA could be described as a qualitative analytic method or a form of socio-legal research method for identifying, summarizing, organizing and analysing patterns or themes considered important or interesting within qualitative data; to tackle research question or issue being raised.[77,78] It enables research in legal field more reliable with the essential epistemological underpinnings of related social science research.[79] It is described as "*the study of recorded human communications, such as books, websites, paintings and laws*."[80]

As Baldwin and Davis observe, qualitative research in law emphasizes the use of direct methods of the institutions, rules, procedures, and personnel of the law, with an ultimate aim of understanding how they work and what effects they have.[81] They went on to point out that qualitative research methods emphasize a thorough understanding of legal processes, usually concentrating on a small number of interactions, but assessing these from a multiple type of context, and perhaps over long periods of time. It may seem that the greatest strength of this approach tends to lie in its ability to reveal a greater understanding of the complexity involved in legal processes[82], and the complex inherent link between process and outcome. It is also useful to explore people's interpretations and the meaning they assign to legal events.[83]

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[74] Bryman, Alan. *Social Research Methods*, Oxford University Press, 2004:181. (Bryman 2004).

[75] Withrow, Brian L. *Research methods in crime and justice*. Routledge: UK. 2014:301.

[76] Dhir, Tekjart Aaron A. *Challenging Boardroom Homogeneity: Corporate Law, Governance and Diversity*. Cambridge University Press: NY. 2015: 177 (Dhir 2015:177).

[77] Braun, Virginia. and Clarke, Victoria. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 2006, 3 (2): 77-101.

[78] Dhir 2015:177.

[79] Hall & Wright 2008:65.

[80] Babbie 2010: 530.

[81] Baldwin and Davis 2003: 880.

[82] Withrow, Brian L. *Research methods in crime and justice*. Routledge: UK. 2014:301.

[83] Miles, Mathew B. and Huberman, Michael A. *Qualitative Data Analysis (*2nd edn.), London: Sage.1994 cited in Baldwin and Davis 2003:891. (Miles & Huberman 2003).

Qualitative content analysis[84] is one of numerous research methods used to analyse text data. Investigations carried out with content analysis showed that its use has a long history that is rich in tradition. The epistemological foundations of content analysis rely on Legal Realism, the analytical school of jurisprudence that discards Legal Formalism's search for autonomous legal doctrines that limit legal actors.[85] Holmes famously proclaimed that "*prophecies of what the courts will do in fact, and nothing more pretentious, are what I mean by the law*." [86] Content analysis is of considerable importance in conventional doctrinal analysis as well as for more theoretically influenced work in major fields of jurisprudence, for example economic analysis or critical theory.[87]

Qualitative content analysis is being used in the identification of the characteristics of a wide spectrum of concepts of the Social Sciences. Krippendorff[88] found that scientific research in communication content can be traced to at least the late 1600s, when a need arose over the potential spread of non-religious matters and newspapers were evaluated by the Church because of its concern.[89] This technique was introduced in the fields of study interrelating communication, sociology, and journalism in the 1950s and has been justified as a valid research tool in a thousand studies aimed at assessing a wide range of

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[84] Qualitative content analysis extends further than purely counting words to assessing language comprehensively with the objective of grouping large number of texts into a well-organized number of categories that represent similar meanings or connotations (Weber, Robert P. *Basic Content Analysis*. Newbury Park, CA: Sage Publications, 1990.). (Weber 1990).
These categorized data can signify either explicit communication or inferred communication. The main purpose of content analysis is "to provide knowledge and understanding of the phenomenon under study" (Downe-Wamboldt, B. *Content analysis: Method, applications, and issues*. Health Care for Women International, 1992:314).(Downe-Wamboldt 1992).

[85] *See generally* Brian Leiter, *Rethinking Legal Realism: Toward a Naturalized Jurisprudence,* 76 TEXAS L. REV. 267 1997).

[86] Oliver Wendell Holmes, Jr., The Path of the Law, 10 HARV. L. REV. 457, 461 (1897)

[87] Hall, Mark A. and. Wright, Ronald F. Systematic Content Analysis of Judicial Opinions, Cal. L. Rev 2008:77 (Hall & Wright 2008:77).

[88] Krippendorff, Klaus. *Content analysis: An introduction to its methodology*. Beverly Hills, California: Sage 1980. (Krippendorff 1980)., cited in: Lewicki, Roy J, Gray, Barbara and Elliott, Michael. *Making Sense if Intractable Environmental Conflicts: Frames and Cases.* U.S.A.: Island Press. (Krippendorff 1980).

[89] ibid. *See also* Franzosi, Roberto (ed.). *Content analysis.* (*SAGE Benchmarks in Social Research Methods series*: (Vols. 1-4)). London: SAGE Publications. 2008.

data.[90, 91, 92.] Legal scholars systematically [93] selected and coded cases in the fields of labour law and zoning. The use of non-legal sources by courts and several other judicial approaches also occupied some early case coders.[94] It is documented that famous legal scholars like Karl Llewellyn created a version of content analysis to study judicial rhetoric and decision-making.[95] Another famous scholar called Richard Posner employed content analysis while researching the seminal study of negligence law. The research consisted of 1,528 cases.[96].

Legal researchers systematically [97] chose and coded cases in the areas of labour law and zoning. Courts' utilization of non-legal sources and different

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[90] Fan, David P. *Predictions of public opinion from the mass media: Computer content analysis and mathematical modeling*. New York: Green Press 1988, cited in: Lewicki, Roy J, Gray, Barbara and Elliott, Michael. *Making Sense if Intractable Environmental Conflicts: Frames and Cases.* U.S.A.: Island Press. (Fan 1988).

[91] Krippendorff 1980.

[92] Strauss, Anselm and Cobin, Juliet. *Basics of qualitative research: Grounded theory procedures and techniques.* Newbery Park: Sage 1990 cited in: Lewicki, Roy J, Gray, Barbara and Elliott, Michael. *Making Sense if Intractable Environmental Conflicts: Frames and Cases.* U.S.A.: Island Press. (Strauss and Cobin 1990).

[93] Hall & Wright 2008:66 citing: Werner F. Grunbaumn & Albert Newhouse, Quantitative Analysis of Judicial Decisions: Some Problems in Prediction, 3 Hous. L. Rev. 201 (1965).

Cf. Charles M. Haar, et al., Computer Power and Legal Reasoning: A Case Study of Judicial Decision Prediction in Zoning Amendment Cases, 2 AM. B. FOUND. RES. J. 651, 742 (1977) (referring to their content analysis as a "computerized restatement" of zoning law).

[94]Hall & Wright 2008:66 citing: Neil N. Bernstein, The Supreme Court and Secondary Source Material: 1965 Term, 57 Geo. L.J. 55 (1968); Richard A. Daynard, The Use of Social Policy in Judicial Decision Making, 56 Cornell L. Rev. 919 (1971).

[95] Hall & Wright 2008:66 citing: Karl N. Llewellyn The common law tradition deciding appeals 102-103 (1960).

[96]Hall & Wright 2008:66 citing: Richard A. Posner, A Theory of Negligence, 1 J. Legal Stud. 29 (1972) (coding trial court records);, p. 29.

[97]See Werner F. Grunbaumn & Albert Newhouse, Quantitative Analysis of Judicial Decisions: Some Problems in Prediction, 3 HOUS. L. REV. 201 (1965);

Cf. Charles M. Haar, et al., Computer Power and Legal Reasoning: A Case Study of Judicial Decision Prediction in Zoning Amendment Cases, 2 AM. B. FOUND. RES. J. 651, 742 (1977) (referring to their content analysis as a "computerized restatement" of zoning law)

other legal methods additionally involved some early case coders.[98] It is recognised that acclaimed legal researchers like Karl Llewellyn made a variant of content analysis to examine judicial rhetoric and decision making.[99] Another popular researcher called Richard Posner, utilized content analysis while looking into an original study of negligence law. The research consisted of 1,528 cases.[100].

The use of QCA does have some weaknesses.[101] The analytic themes are dependent on the particular content and problem at hand. This being the case, they can be made comprehensive by means of illustrations from different sources. The foregoing observation is consistent with the findings of Krippendorff,[102] who conducted a research and found that QCA may be employed in researching on social problems but findings may only substantiate judgments with consequences when investigators make use of "*concepts, categories and language of laws, enforceable agreements,* or other institutional standards"[103] relevant to the institutions affected with these issues and challenges.

2.1.2 Benefits of qualitative content analysis in the current study

In this study, the compiled literature data were examined using QCA, with particular reference to forest laws and policies in the Sudan. QCA was generally used for the purpose of understanding the scientific aspects of the law itself as established in judicial opinions and other legal texts, a topic that plays to the advantage of legal researchers.[104] More specifically, the main reason for the use

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[98] E.g., Neil N. Bernstein, The Supreme Court and Secondary Source Material: 1965 Term, 57 GEO. L.J. 55 (1968); Richard A. Daynard, The Use of Social Policy in Judicial DecisionMaking, 56 CORNELL L. REV. 919 (1971).

[99] Llewellyn, Karl N. *The common law tradition: Deciding appeals*. Vol. 16. Quid Pro Books, 2016: 102-103.

[100] Richard A. Posner, *A Theory of Negligence,* 1 J. LEGAL STUD. 29 (1972) (coding trial court records);, p. 29.

[101] Berelson 1952:138

[102] Krippendorff, Klaus. *Content analysis: An introduction to its methodology*. Los Angeles: Sage 2013:61(Krippendorff 2013).

[103] Krippendorff 2013:61

[104]Hall, Mark A. and. Wright, Ronald F. Systematic Content Analysis of Judicial Opinions, Cal. L. Rev 2008:64 (Hall & Wright 2008:64).

of content analysis in the current research is owing to the fact that the investigator finds it to be a versatile method that offers important advantages as stated below:[105]

1. QCA provides a comprehensive and in-depth understanding of the issue under study;[106]
2. QCA provides detailed examination of the content of legal material;[107]
3. The coverage of content analysis spans the wide spectrum of subject areas as well as having a focus on questions related to legal research methods, "judicial decision making, and statutory interpretation;"[108]
4. It offers a scientific approach to clarify various environmental conventions and strategies regarding environmental protection and sustainable forest management;
5. It helps clarify the objectivity of social science to our level of understanding of law, [109] and management policy;
6. It plays a major role in conventional doctrinal analysis and may theoretically be a significant influence in fields of jurisprudence.[110]
7. It can facilitate valuable insights into historical/cultural events over time via the analysis of texts;
8. It helps to generate results that are more objective; easy to replicate;[111]
9. It has more ability to easily cover wide spectrum of cases;

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[105] Hall & Wright 2008: 87; *See also*: The Colorado State University Writing Centre (CSUWC). An Introduction to Content Analysis. The Colorado State University Writing Centre, USA. 2004:29. Available at: http://www.umsl.edu/~wilmarthp/mrpc-web-resources/content-analysis.pdf [Accessed:10th December, 2017]. (CSUWC 2004:29).

[106] Withrow, Brian L. *Research methods in crime and justice*. Routledge: UK. 2014 (Withrow 2014: 301);

[107] Salehijam, Maryam. The Value of Systematic Content Analysis in Legal Research *Tilburg International Law Review*. (2018) 23(1): 5. (Salehijam 2018;5).

[108] Hall & Wright 2008:73.

[109] Hall, Mark A. and. Wright, Ronald F. Systematic Content Analysis of Judicial Opinions, Cal. L. Rev 2008:64 (Hall & Wright 2008:64).

[110] Hall, Mark A. and. Wright, Ronald F. Systematic Content Analysis of Judicial Opinions, Cal. L. Rev 2008:77 (Hall & Wright 2008:77).

[111] Dhir, Tekjart Aaron A. *Challenging Boardroom Homogeneity: Corporate Law, Governance and Diversity*. Cambridge University Press: NY. 2015: 177 (Dhir 2015:177).

10. It is in itself a mixed method that allows two types of methods, namely quantitative and qualitative methods;
11. It can become close to text which can be flexible enough to alternate between particular categories and relationships;
12. It can also allow the coded form of texts to be statistically analysed.
13. It helps in interpreting texts for the aim of developing expert systems (owing to the ability to code both knowledge and rules in perspective of categorical statements with respect to the relationships between concepts);[112]
14. It offers comprehension of complicated "*models of human concepts and their dynamics, and language use*;"[113]
15. It enables research in the legal field to be more reliable with the essential epistemological underpinnings of related social science research. The method involves combination of a disciplined emphasis on legal subject matter with a presumption that other researchers would have the chance to replicate the research results obtained.[114,115]

2.1.3 Data collection and analysis

In this study, qualitative content analysis was conducted in the form of coding in three phases to generate and establish meaningful patterns or themes regarding existing environmental legislation and policy in the Sudan. The phases consisted of data generation of initial codes, categorization[116] of legislative and policy materials into three principal law areas by searching for themes, describing and stating patterns or themes within data (see Chapter 3, Table 1; Chapter 4, Table 13 and Chapter 4, sub-section 4.2, Table 14, and generating the final report and drawing final conclusion.

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[112] Hall, Mark A. and. Wright, Ronald F. Systematic Content Analysis of Judicial Opinions, Cal. L. Rev 2008:77 (Hall & Wright 2008*). See also*: CSUWC 2004: 29.

[113] Ibid. *See also:* CSUWC 2004: 29.

[114] [114] Hall & Wright 2008: 65

[115] Dhir, Tekjart Aaron A. *Challenging Boardroom Homogeneity: Corporate Law, Governance and Diversity*. Cambridge University Press: NY. 2015: 177 (Dhir 2015:177).

[116] Categorization of collected data by assigning and grouping of written text (or "content units"): Dhir, Tekjart Aaron A. *Challenging Boardroom Homogeneity: Corporate Law, Governance and Diversity*. Cambridge University Press: NY. 2015: 177 (Dhir 2015:177).

Themes were patterns cutting across data sets that were important to the description of a phenomenon and were linked to a certain research question. Qualitative content analysis was employed in analysing the characteristics of language as communication, with a focus on the content or contextual meaning of the text.[117] Texts were coded into categories such as phrases, themes and then examined either by conceptual analysis or relational analysis.[118] In the course of the study and compilation of literature/documents, two approaches were used:

The legal part of this research involved the interplay of both *primary* and *secondary sources of law*. The following sections further explain the primary and secondary sources of law used in this study: The process of data collection and analysis began by carefully reading data compiled from series of literature/documents. The presentation below describes the steps involved in the research process in research methodology: [119;120]

STEPS OF THE QCA RESEARCH PROCESS

This section explains more clearly and pedagogically how this research project applies the research method of QCA. The following five steps outline the research process:

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[117] Budd, Richard W., Thorp, Robert K., and Donohew, Lewis. Content analysis of communications. New York:Macmillan, 1967. (Budd et al. 1967); See *also:* Lindkvist, Kent. Approaches to textual analysis. In: Rosengren, Karl. E. *(ed.), Advances in content analysis,* Beverly Hills, CA*:* Sage, 1981: 23-24. (Lindkvist 1981).; McTavish, Donald G. and Pirro, Ellen B. Contextual content analysis. *Quality and Quantity, 1990,* 24*:* 245-265. (McTavish. & Pirro 1990); Tesch, Renata. Qualitative research: Analysis types and software tools. Bristol, PA: Falmer. 1990. (Tesch)..

[118] Palmquist, Michael. Content analysis. 1990. Available at: https://www.ischool.utexas.edu/~palmquis/courses/content.html [Accessed: 15th November, 2013]. (Palmquist 1990).

[119] Bullet points 2-10: Adopted and modified from Anderson, Rosemary. Intuitive inquiry: A transpersonal approach. In W. Braud & R. Anderson, Transpersonal research methods for the social sciences: Honoring human experience (pp. 69-94). Thousand Oaks, CA: Sage Publications, 1998. (Anderson 1998).

[120] See also: Salehijam, Maryam. The Value of Systematic Content Analysis in Legal Research *Tilburg International Law Review*. 2018, 23(1):3. (Salehijam 2014:3 - 5).

1. **Determination of the research problem**: The initial step of data collection and analysis involved identification of research problems and development of the research question to serve as the focus of the research.
2. **Identification and collection of extensive literature survey for analysis:** Considering the inductive nature of the analysis, themes were generated from series of compiled literature/documents.

Systematic identification based on multiple electronic databases employed for literature search included: DagDok, ECOLEX (information service on environmental law jointly managed by FAO, IUCN and IUCN), Electronic Information System for International Law (EISIL/American Society of International Law (ASIL), FAOLEX Legislative Database of FAO legal Office, Flare Index to Treaties, EBSCO, The League of European Research Universities (LERU) Law Portal, Max Planck Encyclopedias of International Law, ProQuest Databases, Scopus, Social Science Research Network, Springer Link, United Nations Treaty Collection, Web of Science and Westlaw International. In addition, on-going projects reported in national forest programmes, conference proceedings, theses, books and university publications were investigated.

All information that was considered to be relevant to the research topic were highlighted from the literature collected. A thorough reading of the data helped the investigator to become familiar with the collected data.

Data collection

In the course of the study and compilation of literature/documents, two approaches were used, namely primary and secondary data collection methods. *Primary data* for the current study were derived from the sources of International Environmental Law,[121] documents, and articles. Content of sources of International Environmental Law was derived from four main sources of law**:**

General principles of law and rules of international environmental law: This study reviewed aspects of relevant rules that have emerged from treaties,

[121] "Sources" of law as defined by Shaw refer to "provisions operating within the legal system on a technical level, and such ultimate source as reason or morality are excluded," as are spelled out in Article 38(1) of the International Court of Justice (Shaw, Malcolm N. *International Law*, Cambridge: Cambridge University Press, 5th edition, 2003:66). (Shaw 2003).

agreements and customs to general principles of law as spelled out in article 38(I)(c) of the Statute of the International Court of Justice or to logical propositions resulting from judicial reasoning.[122] Documents were derived from the major governing bodies concerned with protection of the environment such as the Environmental Protection Council of the Sudan, United Nations Environment Programme (UNEP) and related organizations;

National laws: The review involved the use of national environmental laws and regulations.

National laws are important as they can point to the acceptance of such custom-based law in the absence of a treaty or other binding international agreement. The Constitution of the Sudan[123] was assessed to provide relevant information regarding the law on the environment;

Judicial *decisions and juristic works or in other words,* "Writing of Eminent Jurists" acted as a means of recognizing the law established in other sources. According to Article 38(1)(d) of the Statute of the International Court of Justice (ICJ) is also to apply: "*Subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law*."[124] O*ther new sources* (e.g. court decisions (case law), resolutions produced by states or general assembly resolutions, declarations, doctrine, soft law recommendations and standards given by world organizations) (in the way they were used for interpreting the law in the Sudan).

Secondary sources of data were derived from other published and unpublished grey literature in the study area, the Sudan. Dictionaries, reference books, legal textbooks, legal journals and legal encyclopaedias were invaluable in this regard.

In this investigation, the process of data collection started via a cautious perusal of both primary and secondary data, to become familiar with the information and then to use a highlighter to mark all descriptions that were of significant value to the research subject. All the most relevant information was highlighted as coded data (see Appendix I, Figure 3).

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[122] Statute of the International Court of Justice, 1945 I.C.J. Acts & Docs. art. 38(1).

[123] Government of the Sudan. The Interim National Constitution of the Republic of the Sudan, Government of the Sudan. 2005, Chapter II, paragraph 11(3). (Government of the Sudan 2005).

[124] Article 38(1)(d) of the Statute of the International Court of Justice (ICJ)

Data analysis (point 3 – 4)

3. Coding and categorization of data:

From the highlighted materials, each distinct element of importance was marked, dissimilar units were classified, comparable and distinct units were grouped and re-grouped, and categories were then re-labelled and similar units were put together in a pile (see Appendix I, Figure 3). Each of these piles of units were then marked and classified as an initial category by means of key words derived and replicated from highlighted text.

The key words copied from highlighted text were used in labelling each initial category. Own categories were used carefully:

- Re-reading the compiled series if literature all over again or afresh, classifying dissimilar units, grouping and regrouping comparable and distinct units, and re-labelling categories (see Chapter 3, Table 1; Chapter 4, Table 13 and Chapter 4 (sub-Section 4.2), Table 14):

- The final tables (see Chapter 3, Table 1; Chapter 4, Table 13 and Chapter 4 (sub-Section 4.2), Table 14) were revised by going through all meaning units for each category and redistributed units, accordingly, relabelled categories as fitting.

The role of coding in the analysis

Coding played a crucial role in the analyses of current research data to organize and make sense of them. Coding allowed this investigator to communicate and connect with the data to facilitate the comprehension of the emerging phenomena grounded in the data. Researchers have discussed the subject of coding at length, especially in the "context of data reduction, condensation, distillation, grouping and classification". [125]

4. Determination of themes cutting across data sets:

Perusing all the information and categories, perusing every single important unit per classification enabled easy redistribution of units as suitable and

[125] See Basit, Tehmina. Manual or electronic? The role of coding in qualitative data analysis. *Educational research* 45, no. 2 (2003):152 (Basit 2003).

relabelling categories as suitable. The whole process at last created clear definitions and names for each theme. Themes are patterns cutting across data sets that are important to the description of a phenomenon and are linked to a certain research question.

In this method, I attempted to pinpoint, examine, and record themes in textual data. In effect, the themes are patterns across data sets that form the "main headings" of individual chapters in the dissertation manuscript. Each defined theme is linked to a certain research question and helps in describing a phenomenon (see Appendix I, Figure 3 and Appendix II, Table 15). The categories across the data sets make up the "sub-themes" or "subheadings" for analysis (see Appendix II, Table 15).

I employed QCA in this study because of its strength in describing the thematic content of series of literature compiled by identifying common themes in the text provided for analysis.

The whole exercise eventually generated clear categories and themes. See Chapter 3, Table 1; Chapter 4, Table 13 and Chapter 4 (sub-Section 4.2), Table 14). Data is then carefully examined by content and level[126] of data obtained via the process of thematic documentation.

[126] Dhir, Tekjart Aaron A. *Challenging Boardroom Homogeneity: Corporate Law, Governance and Diversity*. Cambridge University Press: NY. 2015: 177 (Dhir 2015:177);

5. Reporting of findings e.g. to the legal community and drawing of conclusions[127]

QCA in this project relates to a conventional doctrinal analysis of "applicable law"

Qualitative content analysis plays a major role in conventional doctrinal analysis and may theoretically be a significant influence in fields of jurisprudence (p. 24 item 6): In this study, the sets of text include a variety of items from (1) primary source of law (mainly international treaties, legislative texts), and (2) secondary sources of law (official documents and legal literature), which are complemented by other published and unpublished documents. These materials were analysed by undertaking content analysis. In employing qualitative content analysis (QCA), texts were coded into categories and themes (see Appendix I and II), and then studied either by conceptual analysis or relational analysis. This approach was employed to ensure that the reliability and the validity of the data is authentic.[128]

In the course of study and compilation of literature/data analysis, two approaches were used: First, the materials, past and present were included in the analysis to indicate the evolution and current status of the legal regime regulating forest resources in the Sudan. In this study, *legal dogmatics* was used in the rest of the legal part. The legal part of this research involved the interplay between both *primary* and *secondary sources of law*. The literature data were examined using QCA, with particular reference to forest laws and policies in the Sudan.

- Chapter 3, Table 1; Chapter 4, Table 13 and Chapter 4 (sub-Section 4.2), Table 14, show the analysis of the content of text data through coding and categorizing of the data and recording patterns or themes within data are linked to a certain

[127] Salehijam, Maryam. The Value of Systematic Content Analysis in Legal Research. *Tilburg International Law Review,* 2018:3, 23(1) (Salehijam 2018:5).

[128] Best, W., & Kahn, J. V. *Research in education* (8th ed.). Boston, MA: Allyn & Bacon. 1998. (Best & Khahn 1998). See also: Creswell, J. *Research design: Qualitative, quantitative and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage. 2009. (Cresswell 2009).

research question and important to the description of the phenomenon and issue at stake.

Findings

Following data analysis, three themes were derived from the whole process. These themes are:

1. Environmental law enforcement mechanisms
2. Pre-colonial and colonial conservation practices in the Sudan and their legacy today
3. Analysis and recommendation: The path towards more sustainable forest management.

2.2 Conclusion

In this chapter, the theoretical framework that guided the research was examined. In addition, the research method used to collect data was presented and the research design selected for this particular study together with the data gathering procedures were discussed.

The next chapter presents a review of legal elements and key concepts associated with the subject matter: Environmental law enforcement mechanisms.

CHAPTER 3

ENVIRONMENTAL LAW ENFORCEMENT MECHANISMS

3.1 Introduction

In this chapter, qualitative content analysis (QCA) was employed in analysing both primary sources of law and secondary data compiled from series of literature/documents etc. The focus of analysis was the content or contextual meaning of the text. Both primary and secondary data compiled were regarded as being raw data. These data served as arguments for the research study problem. The investigator used qualitative data in form of descriptive information. The legal sources and series of compiled literature/documents served as an argument for research study problem to be analysed qualitatively. QCA texts were coded into categories and themes, and then examined either by conceptual analysis or relational analysis. Table 1 indicates research questions, categories and themes. Categories from Table 1 formed the individual "subheadings" which subordinated the main heading in this chapter.

The categories, which became subheadings, provided more detailed account, qualified and helped to analyse the "main heading" or theme of the chapter: The theme of Chapter 3: "Environmental law enforcement mechanisms" was derived from the process of data analysis, formed the basis of discussion of subsequent subheadings. The subheadings were generated to lead the flow of discussion and shed more light on the text's treatment of the theme. It did so by dividing up Chapter 3 and discussing each section of the content. The investigator had to analyse and interpret in line with the research to have a clear perspective before documenting details in this manuscript. The outcome of investigator's rigorous and consistent documentation was a qualitative description of the concepts and their interrelations.

This chapter gives a conspectus of environmental law enforcement mechanisms, international conventions and agreements with respect to enforcement efforts. It discusses the scope and magnitude of issues related to forest law enforcement in the Sudan. It presents important general elements to this issue, with attempts to link this to the specific problems of forest management in the Sudan. The general introduction to environmental law

enforcement mechanisms is followed by a description of the national environmental instruments for the protection of the environment in the Sudan. The chapter presents the following instruments for the protection of natural resources in the Sudan: Environmental impact assessment (EIA) experience pursuant to the 2001 Environment Protection Act, environmental permitting and licensing systems, public awareness and participation, conservation orders and financial incentives. The study attempts to link these presentations of relevant texts/rules to the issue of forests in the Sudan.

Part of the chapter briefly presents a few articles in some of the adopted international agreements to which Sudan is a party. It presents some elements of Sudan's implementation of these, i.a. the 1986 Sudanese Government, Wildlife and National Parks protection Act. The chapter presents discussion of the vital limitation to sustainable forest management and points out a lack of compliance with existing forest laws at all levels of society. It stresses that the implementation of forest laws and land use policy relating to the harvesting and trade of timber and wildlife has been ineffective and beyond the capacities of the Forests National Corporation (FNC).

The chapter illustrates examples of wrong doings in forests in the Sudan in a tabular form. These examples demonstrate how the government of the Sudan has failed to implement and/or develop consistent legislation and policies to protect indigenous peoples, including laws about forest resources, and land. It discusses the major causes of land and resource degradation in the Sudan as illegal conversion of forests into agriculture and the unsustainable use of forests in general (resulting in forest degradation).

Table 1. Phases of Qualitative content analysis (QCA) of research question number 1, indicating research questions, categories and theme.

Research Question No. 1	Category	Theme	QCA in relation to the fulfillment of intended aims of the study
(a) What are the legal enforcement mechanisms that can help to enhance compliance with the rule of law and promote conservation and sustainable development? (b) What are the obstacles that hinder the enforcement and compliance of forestlaw in the Sudan? (c) To what extent would mechanisms used to enforce, achieve conservation and protection of forest resources; and their variations in the Sudan?	• Environmental law enforcement mechanisms: An overview; • Legal mechanisms for the management and conservation of forests in the Sudan; • International initiatives and agreements on the management and conservation of forests in the Sudan; • Scope and scale of problems in forest law enforcement and compliance in the Sudan • Extent to which enforcement of mechanisms used to enforce, achieve conservation and protection of forest resources; and their variations in the Sudan.	**Environmental law enforcement mechanisms**	QCA fulfilled the role of completing the following: Identification of research problems and development of research question to serve as the focus of the research *Collection of specific primary sources of law*: Systematic identification based on multiple electronic databases employed for literature search included: DagDok, ECOLEX (information service on environmental law), Electronic Information System for International Law (EISIL/American Society of International Law (ASIL), EBSCO, FAOLEX Legislative Database of FAO legal Office, Flare Index to Treaties, The League of European Research Universities (LERU) Law Portal, Max Planck Encyclopedias of International Law, ProQuest Databases, Scopus, Social Science Research

	Network, Springer Link, United Nations Treaty Collection, Web of Science and Westlaw International. In addition, on-going projects reported in national forest programmes, conference proceedings, theses, books and university publications were investigated. *Collection of secondary data* from other published and unpublished grey literature in relation to the Sudan, reference books, legal textbooks, legal journals and legal encyclopaedias. Data analysis by coding and categorization, revealing the hidden theme Determination of theme cutting across data sets: The whole exercise eventually generated clear categories and themes Documenting findings and drawing of conclusions.

3.1.1 Environmental law enforcement mechanisms: An overview

The world has witnessed expansion in the number of international environmental laws generating several enforcement mechanisms to ensure compliance by states with their international obligations. The primary goal of enforcement is to correct violations and help build a condition in which the regulated community is stimulated to comply, thus protecting the environment. Enforcement may be defined as:

> "a set of actions decreed to achieve compliance within a regulated community and to correct or stop situations that endanger the environment or public health."[129]

In the context of this study, the concept of enforcement implies any action or intervention taken in case of non-compliance.[130] Enforcement usually includes inspections and monitoring, negotiations, and legal action (where necessary), and may include compliance promotion. Enforcement also includes actions that encourage (through incentives) or compel (through sanctions) compliance with international environmental law.[131] While enforcement is often equated with criminal prosecution, this is neither an accurate nor a complete portrayal of enforcement mechanisms.

Compliance describes a state in which environmental requirements are satisfied and desired changes are attained, e.g. changes in processes or raw materials, changes in work practices in order to allow, e.g., disposal hazardous waste at approved sites, tests to be done on new products or chemicals prior to marketing.[132], [133] Compliance is an indivisible part of the

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[129] Kurukulasuriya, Lal and Velasquez, Jerry. 'Compliance and the Role of the Judiciary in Promoting Sustainable Development,' UNEP, Nairobi, 2003:18). (Kurukulasuriya & Velasquez 2003);
Hallberg, Pekka. Rule of Law in a Global Context. *The Journal of Environmental Law (Ympäristöjuridiikka)*, 2012. 36: 11-28. (Hallberg 2012).

[130] Weiss, Edith B. "International Environmental Law: Contemporary Issues and the Emergence of a New World Order." *The Georgetown International Environmental Law Journal,* 1993: 81(3) 1993). (Weiss 1999).

[131] Wasserman, Cheryl E. The Principles of Environmental Enforcement and Beyond: Building Institutional Capacity. Paper presented at The Third International Conference on Environmental Enforcement, Oaxaca, Mexico, April 25-28, 1994:16). (Wasserman 1994).

[132] ibid.

[133] The factors influencing compliance include deterrence, economics, institutional credibility and accountability, knowledge and technical feasibility, and social and psychological factors. (Velasquez, Jerry and Pies, Uli. Introducing the UNU Inter-

rule of law and it gives meaning to the rule of law.[134] Compliance and rule of law play an important role in the field of environment and sustainable development.[135] The principal notion behind sustainable development, i.e. *"meeting the needs of present human society without unduly compromising the capacity of future human societies to meet their needs*,"[136] applicable to policy formulation and operational management, implies protecting the long-term productivity of forest ecosystems - to the best of biological, social, and economic understanding of human beings.[137] For most developing countries, economic growth, employment and alleviation of poverty have been the dominant concerns.

It could be stated clearly that in the absence of the rule of law and compliance to promote social stability and legal certainty, chances of firms to invest and assume the risk that form the basis of market economy development are slim.[138] Another important point is that where compliance

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Linkages Initiative: Focusing on the Implementation of Sustainable Development. A Review of Research Activities of the United Nations University, 2003: 18.). (Velasquez & Pies 2003)). (*See also* Kurukulasuriya, Lal and Velasquez, Jerry. 'Compliance and the Role of the Judiciary in Promoting Sustainable Development,' United Nations University Research Paper 17/2003: 18 (Kurukulasuriya & Velasquez. 2003).

Besides the aforementioned factors which characterize compliance on the regulated parties, a number of other factors influencing compliance are those responsible for regulation of the environmental management rules. These factors, which are partly concerned with the function of the judiciary, play important role in environmental governance at both the national and international levels. (ibid.).

[134] See e.g. Spegelman, Paul J. 'Without a substantial level of enforcement, the rule of law is simply devoid of meaningful content.' *Address at the ICAC-Interpol Conference*, Hong Kong (January 22) A*vailable at*:
http:www.lawlink.nsw.gov.au7sc%5Csc.nsf/pages/spigelman_300103. 2003. [Accessed: 6th August 2012]. (Spegelman 2003). (Address delivered by Spegelman, Paul J., Chief Justice of the Supreme Court of New South Wales. This address was delivered at the *ICAC Interpol Conference*, Hong Kong, January. 22, 2003).
See also Petermann, Erns-Urich. "How to Promote the International Rule of Law?" Journal of International Economic Law, 1998, 1(1): 25-48.

[135] Zaelke, Durwood, Stilwell, Mathew and Young, Oran. 'Compliance, Rule of Law and Good Governance: What Reason Demands: Making Law Work for Sustainable Development' In: Zaelke, Durwood, Kaniaru, Donald and Kružíková, Eva (eds), *Making Law Work: Environmental Compliance and Sustainable Development*, International Law Publishers, 2005, 1: 29-52. (Zaelke et al. 2005).

[136] WCED (World Commission for Environment and Development) '*Our Common Future'* Oxford University Press, 1987: 43. (WCED 1987).

[137] Glover & Hollo 2008.

[138] IADB (Inter-American Development Bank), 'Rule of Law' Available at:

with the rule of law is either lacking or non-existent, the chance of high rates of corruption which may consequently adversely affect the confidence of economic stakeholders.[139] The absence of investment, in turn, can enable economic growth to slow down drastically and thereby depriving governments of resources needed for investment in education, social safety nets, and sound environmental management, all of which are critical for sustainable development.[140] There is general consensus that functional enforcement is essential in ensuring compliance (e.g.141;142;143; 144; 145). The main reason for this is:

> "Functional enforcement approaches serve as a 'deterrence', which is described as the act or ways of changing the behaviour of people in avoidance of a sanction."[146]

<http://www.iadb.org/sds/SCS/site_2776_e.htm> [Accessed: 17th November 2012]. (IADB 2012).

See Spegelman 2003; Carothers, Thomas. "The Rule of Law Revival" *Foreign Affairs*, 1998, 77(2): 95-106. (Carothers 1998).

[139] IADB 2012.

[140] *See,* OECD (Organisation for Economic Co-operation and Development), 'Final Report of the Ad Hoc Working Group on Participatory Development and Good Governance, Part 1 and 10,' 1997. Available at:
<http:// www.oecd.org/dataoecd/44/12/1894642.pdf (1997> [Accessed: 15th December, 2012]. (OECD 1997).

[141] Ehrlich, Isaac**. "**The deterrent effect of criminal law enforcement" Journal *of Legal Studies*, 1972, 2: 259-276. (Ehrlich 1972).

[142] Stigler, George J., 'The optimum enforcement of laws' Journal *of Political Economy* 1979, 70:526–536. (Stigler 1979).

[143] Heyes, Anthony. "Implementing environmental regulation: Enforcement and compliance" Journal of Regulatory Economics 2000, 17(2): 107-129. (Heyes 2000).

[144] Sparrow, Malcom K. The Regulatory Craft: Controlling Risks, Solving Problems, and Managing Compliance, Brookings Institution Press, 2000: 346. (Sparrow 2000).

[145] Zaelke, Durwood, Stilwell, Mathew and Young, Oran. 'Compliance, Rule of Law and Good Governance: What Reason Demands: Making Law Work for Sustainable Development' In: Zaelke, Durwood, Kaniaru, Donald and Kružíková, Eva (eds), *Making Law Work: Environmental Compliance & Sustainable Development*, International Law Publishers, 2005b. (Zaelke et al. 2005).

[146]Ostrovskaya, Elena and Leentvaar, Jan. Enhancing Compliance with Environmental Laws in Developing Countries: Can Better Enforcement Strategies Help? Conference paper–INECE 9th International Conference on Environmental Compliance and Enforcement, 2011:2.
Available at:
<http://www.inece.org/conference/9/papers/Ostrovskaya_UNESCO_Final.pdf > [Accessed: 20th November, 2012). (Ostrovskaya and Leentvaar 2011).

However, laws are not being enforced in most countries.[147] For example, in a recent comprehensive regional review conducted for the World Bank/WWF Alliance on Forest Law Enforcement in selected African Countries, it was realized that the review only focused on large-scale forestry operations for their economic returns alone at the expense of small forest owners. It only referred to local people's livelihoods so far as it concerned their involvement in timber exploitation through benefit sharing mechanisms.[148] Timber companies hardly paid attention to the views and livelihoods of local people who inhabit them; except when it concerned their participation in benefit-sharing from timber exploitation.[149]

Similarly, the international project of the United Kingdom (UK) on illegal logging, with a principal aim to harness the poverty reduction potential of forestry and primary purpose of developing effective forestry strategies to promote the design of policies, processes and institutions that enhance sustainable and equitable livelihoods for poor forest-dependent communities, in its beginning failed to pay adequate attention to rural development.[150]

Likewise, the initial 'Summary Action Plan' connected to the Indonesia-UK Memorandum of Understanding on illegal logging had no concerns of the forest-dependent communities to develop their own management plans

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Also see: Silberman, David in Zaelke, Durwood, Kaniaru, Donald and Kružíková, Eva (eds), Making Law Work: Environmental Compliance & Sustainable Development. International Law Publishers, 2008: 2, 379-402 (Silberman 2008).

[147] Buch, Claudia M. Information or Regulation: What is driving the International Activities of Commercial Banks? Kiel Institute of International Economics Working Paper No. 1011, November 2000. (Buch 2000).

[148] Société Générale de Sécurité (SGS). Forest law enforcement in selected African countries. World Bank/WWF Alliance for Forest Conservation and Sustainable Use, Washington, DC, 2003 (SGS 2003) cited in Colchester, Marcus, Boscolo, Marco, Contrras-Hermosilla, Arnoldo, Del Gatto, Filippo, Dempsey, Jessica, Lescuyer, Guillaume, Obidzinski, Krystof, Pommier, Denis, Richards, Micheal, Sembiring, Sulaiman N., Tacconi, Luca, Vergas Rios, Maria T. and Wells Adrian. Justice in the Forest: Rural Livelihoods and Forest Law Enforcement. Forest Perspectives No. 3. Indonesia: CIFOR. 2006:5. (Colchester et al. 2006).

[149] ibid.: 5.

[150] Department for International Development (DFID) 2002a Illegal logging and associated trade: tackling the underlying governance, policy and market failures. Programme Document. DFID, London (DFID 2002a) cited in Colchester et al. 2006:5.

for food security. This Action Plan had no planned involvement of forest-dependent communities to secure their livelihoods.[151]

One could argue that the problems may be the reasons why there is de facto no practical enforcement of forest law initiatives to protect forest-dependent communities. The failure of such initiatives to protect forest-dependent communities or in some cases, deny these communities access rights may mean a loss of vital livelihood resources of local people. It could also be contested that such initiatives that could negatively impact forest-dependent people's rights, livelihoods and land tenure.

Enforcement plays a critical role by deterring detected violators from disobeying rules again, and it deters others who may intend to violate by sending a warning that violators may experience similar penalties for non-compliance. The U.S. Environmental Protection Agency has classified the approaches into two classes,[152] namely: (1) promotion of compliance by providing education and incentives to the regulated community,[153] and (2) identification of violations and taking whatever enforcement action may be necessary to bring violators into compliance.[154] These two approaches are often described as 'soft enforcement' and 'hard (or "tough") enforcement'[155],

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[151] Department for International Development (DFID) 2002b Summary action plan: Indonesia–UK MoU on illegal logging. DFID, London (DFID 2002b) cited in Colchester et al. 2006: 5.

[152] Wasserman, Cheryl. Principles of Environmental Enforcement. United States Environmental Protection Agency. 1992:19. (Wesserman 1992).

[153] These are approaches that induce compliance. They are described in this study as "*sanction-based".* Approaches create potential for criminalization of violators of the law through arrests, the filing of charges, court judgments and the imposition of punishments (Colchester, Marcus, Boscolo, Marco, Contrras-Hermosilla, Arnoldo, Del Gatto, Filippo, Dempsey, Jessica, Lescuyer, Guillaume, Obidzinski, Krystof, Pommier, Denis, Richards, Micheal, Sembiring, Sulaiman N., Tacconi, Luca, Vergas Rios, Maria T. and Wells Adrian. *Justice in the Forest: Rural Livelihoods and Forest Law Enforcement*. Forest Perspectives No. 3. Indonesia: Center for International Forestry Research (CIFOR) 2006:47 (Colchester et al. 2006).

[154] These are approaches that encourage compliance. They are referred to in this study as "incentive-*based"* Colchester 2006:47). Approaches may include forest-related laws and regulations to ensure their application, which may be done by encouragement, by providing appropriate incentives and by invoking, without exacting penalties (Colchester 2006:47).

[155] Pendleton, Michael. "Crime, Criminals, and Guns in Natural Settings: Exploring the Basis for Disarming Federal Rangers", *The American Journal of Police*, 1996, Vol. 15 (4), 3-25. (*See also* Colchester 2006: xiii.

in some cultures: "carrot" and "stick"[156]. Wasserman [157] produced a third group of approaches, named "hybrid mechanisms," explaining the enforcement mechanisms that combine both sanctions,[158] and incentives.[159] One of the major purposes behind enforcement mechanisms in international environmental law is to achieve environmental protection.

Enforcement often comprises inspection, monitoring, negotiations, and legal action (when the need arises) in order to control the compliance standing of the regulated public and to detect violations. Enforcement also comprises actions that motivate (through incentives) or compel (through sanctions) compliance with international environmental law.[160] Various studies have shown that inspections and sanctions are determining factors for improved future compliance and environmental performance.[161;162; 163] There is a growing body of empirical evidence that credible enforcement is likely to increase beyond-compliance behaviour.[164] While enforcement is usually associated with criminal prosecution, this is neither an accurate nor a complete portrayal of enforcement mechanisms.[165] The major aim of

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[156] Wesserman 1992:19.

[157] Wasserman, Cheryl E. The Principles of Environmental Enforcement and Beyond: Building Institutional Capacity. Paper presented at The Third International Conference on Environmental Enforcement, Oaxaca, Mexico, April 25-28 1994. (Wasserman 1994).

[158] Sanctions is used in this text to mean any adverse consequence imposed on a violator.

[159] Wasserman, 1994:16.

[160] Wasserman 1994:16.

[161] Huang, Chung-Huang. "Effectiveness of environmental regulations under imperfect enforcement and the firm's avoidance behavior." *Environmental and Resource Economics*, 1996, 8(2): 183-204. (Huang 1996).

[162] Rousseau, Sandra and Proost, Stef. "Comparing Environmental Policy Instruments in the Presence of Imperfect Compliance- A case study." Environmental and Resource Economics, 2005, 32: 337-365. (Rousseau & Proost 2005).

[163] Shimshack, Jay and Ward, Michel. "Regulator reputation, enforcement and environmental compliance" Journal of Environmental Economics and Management, 2005, 50 (3): 515-540. (Shimshack & Ward 2005).

[164] Ostrovskaya, Elena and Leentvaar Jan. "Enhancing compliance with environmental laws in developing countries: Can better enforcement strategies help**?"** Environmental compliance and enforcement conference, Canada, July 2011:2. Available at: <http://www.inece.org/conference/9/papers/Ostrovskaya_UNESCO_Final.pdf> [Accessed 21st November 2012]. (Ostrovskaya & Leentvaar 2011).

[165] Wasserman, Cheryl E. The Principles of Environmental Enforcement and Beyond: Building Institutional Capacity. Paper presented at The Third International Conference on Environmental Enforcement, Oaxaca, Mexico, April 25-28 1994. (Wasserman 1994).

enforcement is to detect and correct violations, and create a suitable condition in which the community under regulation becomes motivated to comply, and by so doing, protect the environment.

Other additional observations by some "theorists suggest that effective enforcement may not require frequent or strict regulatory action."[166] For example, a study carried out by Harrington using game theoretic analysis (1988) found that compliance may result in a high frequency, irrespective of enforcement actions being quite low.[167] Livernois and McKenna supported this hypothesis, [168] while Nyborg and Telle rejected the empirical evidence for this inference. [169]

There is increased awareness of and growing concern about the importance of safeguarding the environment from degradation at international and national levels: International efforts to safeguard the environment predate the first historic 1972 United Nations Conference on the Human Environment (UNCHE: the Stockholm Conference).[170] The role of UNCHE was to tackle issues related to the environment and sustainable development. Since the presentation of the World Commission on Environment and Development report in 1987, the world has witnessed an unprecedented growth of international environmental agreements and laws dealing with environmental issues. These developments have resulted in governments as well as non-governmental organizations endorsing the concept of sustainable development. Sustainable development has been defined in several ways, but the following definition taken from the Report of the World Commission on Environment and Development: Our Common

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[166] Ostrovskaya & Leentvaar 2011:2.

[167] Ostrovskaya and Leentvaar 2011:2.

[168] Livernois, John and McKenna, Christopher. 'Truth or consequences: Enforcing pollution standards with self-reporting.' Journal of Public Economics, 1999**,** 71(3): 415-440. (Livernois & McKenna 1999).

[169] Nyborg, Karine and Telle, Kjetil. '"Firms" compliance to environmental regulation: Is there really a paradox?' Journal of Environmental and Resource Economics, 2006, 35: 1-18. (Kjetil & Telle 2006).

[170] Stockholm Declaration on the Human Environment, in Report of the United Nations Conference on the Human Environment, UN Doc.A/CONF.48/14, at 2 and Corr.1 (1972). (Stockholm Declaration 1972).

The Stockholm and Rio Declarations resulted from UNCHE in Stockholm, June 5-16, 1972, and the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, June 3-14, 1992. Other policy or legal instruments that emerged from these two global environmental conferences were the Action Plan for the Human Environment at Stockholm and Agenda 21 at Rio, are closely connected to these two declarations.

Future,[171] (4 August 1987 (A/42/427, Annex) is the most frequently cited definition:

> "believing that sustainable development, which implies meeting the needs of the present without compromising the ability of future generations to meet their own needs, should become a central guiding principle of the United Nations, Governments and private institutions, organizations and enterprises,"[172]

However, the same era has also witnessed unprecedented environmental degradation.[173] In order to combat the degradation of the ecosystems while meeting the growing needs for their services, the Millennium Ecosystem Assessment report states that changes in legal mechanisms may be required to create enabling conditions for prevention of those ecosystem services from becoming endangered or even degraded in many parts of the world.[174] However, a coherent vision on how law could assist in permanently safeguarding ecosystem services thereby ensuring that states comply with their international environmental obligations continues to be a matter of international concern.[175]

Various studies have shown that the major factors affecting compliance include economic, political, technological, personal, and social ones. Nonetheless, the reason most frequently cited for non-compliance is

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[171] Also known as the Brundtland Report.

[172] United Nations General Assembly. Report of the World Commission on Environment and Development: Our Common Future. Oslo, Norway: United Nations General Assembly, Development and International Co-operation: Environment. 1987. (Transmitted to the General Assembly as an Annex to document A/42/427 - Development and International Co-operation: Environment) (WCED 1987). (*See also:* World Commission on Environment and Development, Our common future. Report of the World Commission on Environment and Development (1987). Oxford: Oxford University Press, 1987).

[173] Chambers, Bradnee, "Towards an Improved Understanding of Legal Effectiveness of International Environmental Treaties" *The Georgetown International Environmental Law Review,* 2004, 16:501-32. (Chambers 2004).

[174] Millennium Ecosystem Assessment 2005.

[175] Sands, Phillipe. *Principles of International Environmental Law*, Cambridge University Press, 2005: 171. (Sands 2005).

inadequate monitoring and enforcement of law.[176; 177; 178; 179] Environmental enforcement is an integral component of any effective environmental protection effort and sustainable development.[180] The application of environmental laws and regulations are influenced by effective enforcement. Enforcement performance is also influenced by appropriate policies, laws and regulations.[181]

The need for viable measures and mechanisms to strengthen enforcement and compliance has been widely recognized in recent years. For example, the participants of the Rio Earth Summit held in Rio de Janeiro in 1992 recognized this necessity in Agenda 21, Chapter 8, Section 8 (21) (e) which exhorts

> "each country to develop integrated strategies to maximize compliance with its laws and regulations relating to sustainable development, with assistance from international organizations and other countries as appropriate."[182]

Chapter 8, Section 8(21)(e) of Agenda 21 has recognized an international obligation to promote compliance and enforcement capacity as an essential, irreplaceable element of effective environmental management.[183] The aforementioned chapter of Agenda 21 also created an environment to promote empowerment of United Nations Environment Programme (UNEP) and other organizations and institutions worldwide in supporting and implementing environmental compliance and enforcement activities,

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[176] Ostrovskaya and Leentvaar 2011: 2.

[177] Mitchell, Ronald. 'Compliance Theory: An Overview' in James Cameron Jacob Werksman and Peter Roderick (eds), Improving Compliance with International Environmental Law, Earthscan, 1996: 3-28. (Mitchell 1996).

[178] Sparrow, Malcolm. The Regulatory Craft: Controlling Risks, Solving Problems, and Managing Compliance, Brookings Institution Press, 2000: 346. (Sparrow 2000).

[179] INECES (International Network for Environmental Compliance and Enforcement Secretariat), Principles of Environmental Compliance and Enforcement. Handbook. (INECES 2009).

[180] Paquin, Marc and Sbert, Carla. 'Towards Effective Environmental Compliance and Enforcement in Latin America and the Caribbean,' Centre International Centre, 2004. (Paquin & Sbert 2004).

[181] ibid. p. 3.

[182] Rio Declaration on Environment and Development, in Report of the United Nations Conference on Environment and Development, UN Doc. A/CONF.151/26 (Vol. I), 12 August 1992, Chapter 8, Section 8 (21) (e). (UNCED 1992).

[183] ibid. Agenda 21, Chapter 8, Section 8(21)(e).

including capacity building.[184] Chapter 8, Section 8(21)(a) of Agenda 21 recognizes the important strategy of:

> "enforceable, effective laws, regulations and standards that are based on sound economic, social and environmental principles and appropriate risk assessment, incorporating sanctions designed to punish violations, obtain redress and deter future violations"[185]

A general objective for compliance and development is to develop laws and regulations that are enforceable. To begin with, this strategy involves the interpretation of wide-ranging environmental laws with specific regulations; environmental impact assessment regulations etc. and disseminating feedback through legislators to revise laws that cannot be enforced.

Chapter 8, Section 8(21)(b) of Agenda 21 which stresses the importance of "*mechanisms for promoting compliance*,"[186] strategies of developing laws and regulations that are enforceable necessitate promoting compliance by the dissemination of information about environmental requirements; making available cleaner production information, education and technical assistance to regulated community; strengthening public awareness and support; disseminating success stories and a possible provision of economic incentives and facilitating access to financial resources. Chapter 8, Section 8(21)(c) of Agenda 21 recognizes the importance strategy of:

> "institutional capacity for collecting compliance data, regularly reviewing compliance, detecting violations, establishing enforcement priorities, undertaking effective enforcement, and conducting periodic evaluations of the effectiveness of compliance and enforcement programmes."[187]

Based on this article, these strategies may involve inspections, self-monitoring, record-keeping and reporting to lead agency, community monitoring and citizen complaints and sampling of environmental conditions (air, water, soil) in the vicinity of a facility. Mechanisms should be in place to increase public awareness and promote responsibility for effective environmental compliance and enforcement. Chapter 8, Section 8(21)(d) of Article 21 stresses the need for:

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[184] ibid.

[185] ibid. Agenda 21, Chapter 8, Section 8(21)(a).

[186] ibid. Agenda 21, Chapter 8, Section 8(21)(b).

[187] ibid. Agenda 21, Chapter 8, Section 8(21)(c).

> "mechanisms for appropriate involvement of individuals and groups in the development and enforcement of laws and regulations on environment and development"[188]

Appropriate mechanisms are essential to encourage the involvement of agencies, local communities, organizations, and individuals in the participation in decision-making, and development and enforcement of laws and regulations and to strengthen capacity towards implementation and enforcement of environmental requirements.

[188] ibid. Agenda 21, Chapter 8, Section 8(21)(d).

3.1.2 The enforcement system: Legal mechanisms for the management and conservation of forests in the Sudan

[Research question number 1(a). What are the legal enforcement mechanisms that can help to enhance compliance with the rule of law and promote conservation and sustainable development?]

Introduction

This section examines and analyses the mechanisms used to enforce international environmental law for the management, conservation and protection of forest resources in the Sudan.

3.1.2.1 Environmental Impact Assessment: An overview

This section presents a general overview of environmental impact assessment (EIA), while the follow-up section discusses the EIA experience in the Sudan.

Environmental Impact Assessment (EIA) is defined as the systematic description, evaluation and integrated presentation of the environmental effects of a 'proposed action'[189] at a stage where serious environmental damage may be avoided or minimized.[190] The United Nations Economic Commission for Europe (UNECE) Convention on Environmental Impact

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[189] Also termed: "proposed activity" by the Convention on Environmental Impact Assessment (EIA) in a Transboundary Context (Espoo, 1991) - The 'Espoo (EIA) Convention' Article 1(v), defined "proposed activity" as:

> "any activity or any major change to an activity subject to a decision of a competent authority in accordance with an applicable national procedure."

- The 'Espoo (EIA) Convention 1991,' Article 1(v).

[190] *See* Leiss, William (ed) Ecology *versus Politics in Canada,* University of Toronto Press 1979: 213. (Leiss 1979). EIA is a useful tool for promoting environmental protection and conservation of the natural resource base and ultimately, sustainable development because it includes many components that can facilitate equality in every aspect and it can reduce environmental degradation by identifying problems prior to occurrence.

Assessment (EIA) in a Transboundary Context (Espoo Convention)[191] signed on 25th February, 1991 in Espoo, Finland, specifies that countries can do joint EIAs as part of their overall obligation to prevent, reduce and control significant adverse transboundary environmental impacts from the proposed activities. Article 1(vi) of the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991) - the 'Espoo (EIA) Convention' defines "Environmental impact assessment" as "*a national procedure for evaluating the likely impact of a proposed activity on the environment.*"

The creation of Environmental Impact Assessment (EIA) procedure is a legal approach to protect the environment from land development impacts. Article 1(vii) of the Convention on EIA in a Transboundary Context (Espoo, 1991) - the 'Espoo (EIA) Convention' defines "Impact" as:

> "Any effect caused by a proposed activity on the environment, including human health and safety, flora, fauna, soil, air, water, climate, landscape and historical monuments or other physical structures or the interaction among these factors; it also includes effects on cultural heritage or socio-economic conditions resulting from alterations to those factors."[192]

- Article 1(vii) of the Convention on EIA in a Transboundary Context (Espoo, 1991)

The EIA aim was to provide national decision-makers with the necessary data regarding possible environmental effects, when deciding whether to authorize the activity to proceed and what controls to place on it. EIA is also described as a tool which helps to inform and support decision-making; but falls short of determining whether a project should proceed or how it should be regulated.[193] The National Environmental Policy Act (NEPA) of 1969,[194]

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[191] Convention on Environmental Impact Assessment in a Transboundary Context (Espoo), *International Legal Materials*, 1991, 30 (802). (Espoo Convention 1991).

[192] Article 1(vii) of the Convention on EIA in a Transboundary Context (Espoo, 1991)

[193] Bruch, Carl, Nakayama, Mikiyasu, Troell, Jessica, Goldman, Lisa and Maruma, Elizabeth M. Assessing the Assessments: Improving Methodologies for Impact Assessment in Transboundary Watercourses. *Water Resources Development*, 2007, 23(3): 391–410. (Bruch et al. 2007).

[194] National Environmental Policy Act of 1969 (Congressional declaration of national environmental policy), Pub L. 91 – 190, as amended (1 January 1970) codified at 42 USC § 4331; The National Environmental Policy Act of 1969, as amended (Pub. L. 91-

was the first major environmental law in the United States of America (USA).[195] This Act enabled the US to become known as the country with the first national Environmental Impact Assessment (EIA) requirement. On 1st January, 1970, NEPA 1969 was signed into law (Public Law 91-190), 42 U.S.C. 4321 and 4331-4335)[196] (by President Nixon). [197] The Act requires federal agencies to use the EIA in assessing and exploring the potential environmental and related social and economic impacts of their proposed actions prior to making decisions.[198]

The Espoo (EIA) Convention 1991 sets out the obligations of Parties to assess the environmental impact of certain activities at an early stage of planning. The Espoo Convention lays down the general obligation of States to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across boundaries.

Several international environmental instruments now call for some system of environmental impact assessment for projects, including the Rio Declaration in its Principle 17,[199] the Biodiversity Convention, the World Charter for Nature[200] and the Organisation for Economic Co-Operation and Development (OECD) Recommendation of the Council on the Assessment of Projects with Significant Impact on the Environment.[201] The Council

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190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, § 4(b), Sept. 13, 1982).

[195] OECD Environmental Performance Reviews: United States. Organisation for Economic Co-operation and Development (OECD), OECD Publishing, 2005: 155. (OECED 2005): *See also*: Caldwell, Lynton K. Environmental Impact Analysis (EIA): Origins, Evolution, and Future Directions, Impact Assessment, 1988. 6:3-4, p. 75.

[196] National Environmental Policy Act of 1969, Pub L. 91 – 190, as amended (1 January 1970) codified at 42 U.S.C. 4321 and 4331-4335.

[197] OECD Environmental Performance Reviews: United States. Organisation for Economic Co-operation and Development (OECD), OECD Publishing, 2005: 155 (OECD 2005).

[198] National Environmental Policy Act of 1969 (Congressional declaration of national environmental policy), Pub L. 91 – 190, as amended (1 January 1970) codified at 42 USC § 4331

[199] Rio Declaration on Environment and Development, 1992, 31 ILM 876 (Rio Declaration 1992).

[200] World Charter for Nature, A/RES/37/7, 48th plenary meeting. Available at: http://www.un.org/documents/ga/res/37/a37r007.htm 1982. [Accessed:18th March 2013].

[201] Organisation for Economic Co-operation and Development, Recommendation of the Council on the Assessment of Projects with Significant Impact on the Environment. Available at:

Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment (EIA) and Directive 2001/42/EC of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment (SEA). The United Nations Conference on Environment and Development in its Preamble, under Principle 17, proclaims that:

> "Environmental impact assessment as a national instrument shall be undertaken for proposed activities…"[202]

Article 14 (1)(a) of the Convention on Biological Diversity placed a clear obligation on the contracting party, as far as possible and as appropriate, to:

> "Introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures."[203]

An environmental issue of major concern is how to operationalize the incorporation of EIA in project planning, design, management, and implementation of development projects in developing countries. Delegates attending the Expert Group Meeting on Environmental Impact Assessment in Developing Countries that took place in Guangzhou, China in March 1983, highlighted this issue central to EIA.[204] There are attempts in Africa to establish EIA procedures in *Ghana, Kenya, Mozambique, Nigeria, South Africa, and Zimbabwe.* However, these countries are practising EIA procedures that are more connected to Western EIA models than the socio-economic and institutional framework of a given developing country.

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http://acts.oecd.org/Instruments/ShowInstrumentView.aspx?InstrumentID=26&InstrumentPID=24&Lang=en&Book=False [Accessed: 19th March 2013].

[202] United Nations Conference on Environment and Development, 1992, Preamble, under Principle 17.

[203] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 142. (CBD 1992). *See also:* CBD (Convention on Biological Diversity): Convention text. Available at: http://www.cbd.int/doc/legal/cbd-en.pdf. 1992. [Accessed: 18th March 2013].

[204] Biswas, Asit K. Summary and recommendations. In: Asit K. Biswas and S. B. C. Agarwala (eds.) Environmental Impact Assessment for Developing Countries, Oxford, Butterworth-Heinemann. 1992. (Biswas 1992).

In a recent survey conducted by Appiah-Opoku in Ghana, it was realized that when study area residents were asked to identify and rank constraints to the EIA procedure, *"lack of organized baseline data and lack of local EIA experts topped the list*. These factors were followed by *"institutional problems"* and "*lack of environmental awareness*"[205] In order to address these issues, attempts have been made by the agency to organize training workshops to train local consultants in the preparation of environmental impact statement (EIS).Scientists or experts play a major significant role in EIA but the record has been that issues affecting EIA can rarely be solved simply by scientific methods.[206]

An example can be cited of the failure of the James Bay hydroelectric project in Canada in attempts to predict the effect of EIA on native peoples in the La Grande River watershed.[207] Findings revealed that researchers relied on scientific predictions and excluded use of local value sets to interpret and evaluate predicted effects.[208]

Similar impact assessment study carried by other scientists, provided opportunities for local people to participate in the study of the "*Beaufort Sea Hydrocarbon Production and Transportation and the Norman Wells Oil Field Development projects in Canada"* provided valuable and valid baseline and monitoring records for environmental assessment. Ebbesson[209] points out that the effectiveness of the EIA convention to

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[205] Appiah-Opoku, Seth. Environmental impact assessment in developing countries: the case of Ghana. *Environmental Impact Assessment Review,* 2001:64-65 (Appiah-Opoku 2001:64-65).

[206] Gibson, R. B. Basic Requirements for Environmental Assessment Processes: A Framework for Evaluating Existing and Proposed Legislations, Unpublished paper, Environment and Resource Studies, Faculty of Environmental Studies, U of Waterloo. 1990. (Gibson 1990), as cited in Appiah-Opoku, Seth. "Environmental impact assessment in developing countries: the case of Ghana." Environmental Impact Assessment Review, 2001, 21(1): 59-71. (Appiah-Opoku 2001).
Richardson, Tim, Environmental assessment and planning theory: four short stories about power, multiple rationality, and ethics. Environmental Impact Assessment Review, 2005, 25 (4),341–365 (Richardson 2005), as cited in Appiah-Opoku (2001),

[207]Berkes, Fikret. The intrinsic difficulty of predicting impacts: lessons from the James Bay hydro project." *Environmental Impact Assessment Review*.1988, 8(3): 201-220. (Berkes 1988).

[208]Meredith, Thomas C. Environmental impact assessment, cultural diversity, and sustainable rural development. *Environmental Impact Assessment Review*, 1992, 12(1-2):125-138. (Meredith 1992).

[209] Ebbesson, Jonas. "Innovative elements and expected effectiveness of the 1991 EIA Convention." Environmental Impact Assessment Review 19.1 (1999): 47-55.

contribute to international pollution control depends on the involvement of the public in the EIA process and on the procedures for coordination and notification.

Lalonde[210] studied the effectiveness of local people's involvement in impact assessment and as part of information from monitoring activities, compiled a list of native people's concerns that were revealed during consultations in their communities. Thus, the participation of local people in impact assessment studies is of paramount importance, because not only it balances what one might refer to as apparent or perceived bias of proponents, but also it contributes in revealing and assessing the non-technological influential factors in the decision-making process related to EIA.

An example could be cited of the Volta Resettlement Scheme (VRS) in Ghana, established in the early 1960s. The VRS Project officials did not pay attention to the differences in the background of kinship groups, power hierarchies, and value systems while regrouping numerous isolated villages at a new location to enjoy common public facilities. The actions of the project officials induced acrimony and lack of social relations among settlers.[211]

In addition, the VRS Project officials succeeded in constructing new housing facilities provided for the settlers and enforced building standards without including the socio-economic conditions of the settlers. For example, main-housing facilities were constructed with modern and relatively sophisticated technology and expensive materials: Cement was used in the construction of walls in place of mud or swish and aluminium was used as roof material instead of thatch.

As a result, the settlers found it more and more difficult to sustain financially and culturally. In the light of later events, it was realized that the role of settlers' participation in the project plan implementation or execution might well have prevented the costly project[212]

Ease of use of baseline data, including previous and current nature of local ecosystems, is important to EIA.[213] In this regard, the local people's

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[210] Lalonde, André. The Federal Environmental Assessment Review Process and Traditional Ecological Knowledge. Environment Canada, Federal Environmental Assessment Review Office, Ottawa, Canada. 1993. (Lalonde 1993).

[211] Chambers, Richard. The Volta Resettlement Experience. Pal1 Mal1 Press: London. 1970. (Chambers 1970).

[212] ibid.

[213] Johannes, Robert E. Integrating Traditional Ecological Knowledge and Management with Environmental Impact Assessment, In: Inglis, J.T. (ed.) Traditional Ecological Knowledge: Concepts and Cases, IDRC, Ottawa: Canada. 1993. (Johannes 1993).

ecological knowledge is of paramount importance.[214] Local people's ecological knowledge, could be used to complement the few pieces of scientific data in the country, identify priorities for project planning, implement and monitor for impacts in their communities.

Empirical evidence exists to support this assertion: Everitt[215] noted that case study-based evidence revealed that the participation of local people in impact monitoring of the Mackenzie Valley Environmental Monitoring Programme for the delta and possible pipeline corridor in 1985 and the post-construction monitoring of the Norman Wells Oilfield expansion in Canada yielded a considerable number of positive results in recommending scientifically defensive monitoring and research programme to tackle the possible effects of oil and gas development in the region.[216] Local community residents in the Mackenzie Valley and its environs played a significant role in influencing the plan and development of the project, especially in in its resource-harvesting component. The incorporation of this component allowed the voice of native community residents to be heard in decision-making process.[217]

Public participation contributes to and plays a significant role in *"influencing decision-making and implementing substantive environmental laws*."[218] The concept of environmental impact assessment has advanced, bearing in mind the assumption that the quality and sustainability of decision-making could be enhanced by integrity of the public participation [219] effectiveness.

A number of reasons have been given by the World Bank to explain the poor performance of environmental impact assessment in developing countries. As reported by the World Bank, the considerable number of developmental projects lacking compulsory EIAs has justified numerous

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[214] Bourque, J., J.T. Inglis, and P. LeBlanc. A Canadian led International Program on Traditional Knowledge, Unpublished Manuscnpt. UNESCO, Canada Man and Biosphere Program, Ottawa, Canada. 1992. (Bourque, Inglis, & LeBlanc).

[215] Everitt, R.R. Native People and Renewable Resource Management. Edmonton: Alberta Society of Professional Biologists. 1986:45. (Everitt 1986:45).

[216] Everitt, R.R. Native People and Renewable Resource Management. Edmonton: Alberta Society of Professional Biologists. 1986. (Everitt 1986).

[217]Kotzke, Claudia. *Aboriginal peoples and natural resources in Canada*. Captus Press: Ontario, 1994: 283. (Notzke 1994:283).

[218] Ebbesson, Jonas. The notion of public participation in international environmental law. Yearbook of International Environmental Law 1998: 58 (Ebbesson 1998: 58).

[219] [219] Ebbesson, Jonas. The notion of public participation in international environmental law. Yearbook of International Environmental Law 1998: 58 (Ebbesson 1998: 67).

EIA reports to be made against the backdrop of non-existing baseline environmental data, resulting in EIAs of poor quality.[220]

Appiah-Opoku[221] studied "EIA in developing countries with special reference to Ghana", and found that, the main constraints related to the EIA process include a total lack of rigorous, organized and reliable scientific data. He added that developing countries experience a lack of local experts to supply relevant data. Mounir noted that the poor implementation of environmental impact assessment in sub-Saharan Africa is due to the lack of practical knowledge, experience and ability, and abundant financial strengthening to satisfy the diverse demands of EIA.[222]

Various studies have shown that a number of limiting factors hindering the full utilization of the EIA process in developing countries consist of unfamiliarity and diversity that is present in the environmental impact assessment concept itself and its importance in the planning process, inadequate public participation, shortage of national expertise and lack experience in EIA, Lack of an indigenous team with knowledge in the field of environmental assessment, unreliable and shortage of reference data, inadequate impact coverage, weak environmental legislation, weak institutional structures to implement EIA and enforcement and lack of suitable technology for environmental impact assessment.[223]

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[220] The World Bank. Guidance Notes on Tools for Pollution Management. In Getting to Green: A Sourcebook of Pollution Management Policy Tools for Growth and Competitiveness. p 156. Available from: http://siteresources.worldbank.org/ENVIRONMENT/Resources/Getting_to_Green_web.pdf [Accessed: 15th December 2016].

[221] Appiah-Opoku, Seth. Environmental impact assessment in developing countries: the case of Ghana. *Environmental Impact Assessment Review* 2001: 64 -65. (Appiah-Opoku,2001).

[222] Mounir, Z M. Evaluation of the quality of environmental impact assessment reports using Lee and Colley package in Niger Republic. *Modern applied science*, 2015, 9(1): 1913-1844. (Mounir 2015).

[223] Kakonge, John O. Environmental Planning in Sub-Saharan Africa: Environmental Impact Assessment at the Crossroads. Forestry & Environmental Studies Publications Series. 13. 2006. (Kakonge 2006);
Ebisemiju, F. S. Environmental impact assessment: making it work in developing countries. *Journal of Environmental Management*, 1993:249. (Ebisemiju, 1993:249);
World Bank. Guidance Notes on Tools for Pollution Management. In Getting to Green: A Sourcebook of Pollution Management Policy Tools for Growth and Competitiveness. 2012.. Available at: http://siteresources.worldbank.org/ENVIRONMENT/Resources/Getting_to_Green_web.pdf [Accessed: 10th December 2016] (World Bank 2012);

A study carried out in Nigeria ascribed the substandard performance of EIA to the absence of political will to sustain environmental principles, the lack of accurate data for analysing the potential EIS of proposed projects and alternatives, and unexecuted EIA reports.[224] Bhat,[225] in an influential book on "Natural resources conservation law," give an extensive example that suggests that the lack of accurate environmental data may often result in decisions against the interest of the general public: The evidence assembled from the following case[226] in India corroborates the key assumptions on importance of proper environmental information. This case is an excerpt partly adapted from Prasad,[227] Bhat[228] and Jena,[229] and has been reported as an example of such judicial laxity in India[230, 231] and elsewhere: Petitions were filed seeking a writ forbidding the State of Kerala from proceeding to

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Biswas, Asit K. Summary and recommendations. In: Asit K. Biswas and S. B. C. Agarwala (eds.) Environmental Impact Assessment for Developing Countries, Oxford, Butterworth-Heinemann. 1992. (Biswas 1992);

OECD (Organization for Economic Cooperation and Development. Good Practices for Environmental Impact Assessment of Development Projects, Paris, Development Assistance Committee, OECD. 1992. (OECD 1992);

Glasson. John and Riki Therivel. Introduction to Environmental Impact Assessment. Routledge: London. 2013. (Glasson and Therivel 2013).and Wood, Christopher. Environmental impact assessment in developing countries: an overview. In: Conference on new directions in impact assessment for development: methods and practice (Vol. 24). Manchester, United Kingdom: EIA Centre School of Planning and Landscape University of Manchester. (Wood 2003).

[224] Ingelson, Allan and Nwapi, Chilenye (2014) 'Environmental Impact Assessment Process for Oil, Gas and Mining

Projects in Nigeria: A Critical Analysis', 10/1 Law, Environment and Development Journal 2014; 10(1): p. 38.

[225] Bhat, Sairam. *Natural Resources Conservation Law*. SAGE Publications Ltd. 2010:433 (Bhat 2010).

[226] The society for protection of Silent Valley v. Union of India and others. (OP Nos. 2949 and 3025 of 19790).

[227] Prasad, Mansi. 'Silent Valley Case: An Ecological Assessment' *Cochin University Law Review* 128: 8-15, 1984. (Prasad 2010).

[228]Bhat, Sairam. *Natural Resources Conservation Law*. SAGE Publications Ltd. 2010:433 (Bhat 2010).

[229] Jena, Krushna C. Judicial interpretation on industrialisation and sustainable development. *The Bioscan*: Special issue, 2010 (2): 439-440 (Jena 2010).

[230] Prasad 2010, 128: 8-15,

[231] Jena 2010: 439-440.

construct a dam at Silent Valley[232]. The petitioners had provided scientific evidence from available socio-economic and environmental studies indicating adverse effects of environmental changes due to the conversion of the Silent Valley forest into a dam. The judgment did not consider the drawbacks but sided with the government that the dam would generate considerable amount of power at the cheapest rate. Due to lack of administrative guideline for EIA at the time the case was decided, the Silent Valley Forest could not have been preserved.

With respect to observed and documented lacunae between the intent and performance of environmental impact assessment in a number of developing countries where the system has been established, it is pointed out that the lacunae have been attributed mostly to: "*legislative, administrative, institutional and procedural deficiencies in their EIA systems"*[233] than to the technical issues widely discussed in the literature. Oiokesusi[234] studied the issues related to some water resource projects in Nigeria and found that, besides the Kainji Dam, most of the remaining literature failed to critically assess health and environmental concerns. Olokesusi[235] also conducted a critical analysis of the literature of ten final feasibility reports for industries, comprising various projects in Nigeria, to confirm the lack or non-existence of health and environmental concerns.

In order to address such issues, indigenous populations could possibly rely on the application of indigenous ecological knowledge as an appropriate mechanism to play a complementary role Western scientific knowledge in improving the lacunae in scientific data management and availability of experts in the country for EIA studies.[236]

Indigenous ecological knowledge (IEK) not only has the potential to complement Western scientific knowledge in ways assessment and

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[232] The Silent Valley is considered a virgin tropical evergreen rain forests and a lush part of the country which is also a haven for wildlife. It is situated in the Palakkad district of Kerala in India.

[233] Ebisemiju, F. S. Environmental impact assessment: making it work in developing countries. *Journal of Environmental Management*, 1993:249. (Ebisemiju, 1993:249).

[234]Olokesusi, F. Environmental impact assessment in Nigeria: Current situation and directions for the future. *Journal of Environmental Management*, 1992:164 (Olokesusi 1993:164).

[235] Olokesusi, F. Environmental impact assessment in Nigeria: Current situation and directions for the future. *Journal of Environmental Management*, 1992:164 (Olokesusi 1993:165).

[236] Appiah-Opoku, Seth. "Environmental impact assessment in developing countries: the case of Ghana." Environmental Impact Assessment Review, 2001:65. (Appiah-Opoku 2001:65).

evaluation policies can improve. Application of IEK could also boost local people's involvement and bottom-up approaches in relation to environmental and planning decisions. The involvement of local people may also contribute meaningfully in helping scientists to gain further insights and understanding of traditional use of local resources through local value sets of interpretation and participatory monitoring and evaluation of project impacts on local communities.

Several urgent generic concerns need to be taken into consideration if EIA is to meet its potential. These concerns include legislation, appropriate organisational capacity, training opportunities, adequate environmental data, public participation with respect to decision-making processes, utilization and dissemination of operating experience, utilization and dissemination of operating experience and political will.[237]

An important influencing factor of participation is the issue of power relations existing between participants. Various studies have shown that power relations between participants may certainly influence the ability of diverse groups of people to enter social negotiations that support equitable and inclusive practice.[238] This being the case it is noted that environmental impact assessment practitioners should also take into consideration the *"inherent power relations found in rationalist decision-making processes"*[239] that can impede genuine participation and worsen environmental injustice.[240]

With respect to various measures required to tackle key constraints related to the EIA process and to reinforce it in general, Kakonge[241] noted that key measures such as increasing "ownership" of environmental impact assessment, ensuring compliance with both domestic law and international agreements, improving funding and financing of EIA research for

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[237]Wood, Christopher. Environmental impact assessment in developing countries: an overview. In: *Conference on new directions in impact assessment for development: methods and practice*. Manchester, United Kingdom: EIA Centre School of Planning and Landscape University of Manchester.2003, Vol. 24, p.1. (Wood 2003).

[238] Morgan, Richard K. Environmental impact assessment: The state of the art, *Impact Assessment and Project Appraisal*, 2012:8 (Morgan 2012:8).

[239] Morgan, Richard K. Environmental impact assessment: The state of the art, *Impact Assessment and Project Appraisal*, 2012:8 (Morgan 2012:8).

[240] Morgan, Richard K. Environmental impact assessment: The state of the art, *Impact Assessment and Project Appraisal*, 2012:8 (Morgan 2012:8).

[241] Kakonge, John O. Environmental Planning in Sub-Saharan Africa: Environmental Impact Assessment at the Crossroads. Forestry & Environmental Studies Publications Series. 13. 2006. (Kakonge 2006).

government funded environmental projects, promoting public awareness towards the issue of the EIA process, fighting corruption and improving the quality of good governance.

With respect to the key to strengthening the EIA process, various studies have shown that it is of paramount importance to put in place sound legal framework. This being the case, this has not been the standard in different parts of the world including sub-Saharan Africa where the legal foundation of environmental impact assessment systems could best be described as poor, voluntary or absent.[242]

Mpotokwane and Keatimilwe,[243] studied the effectiveness legislation on EIA in Botswana and found that, weak enforcement of environmental rule of laws, and in particular, implementation of legislation in terms of EIA was either lacking or non-existence in the country and as a result, EIA practitioners could be seen not adhering to the most suitable EIA procedures for proposed projects. Experience demonstrates that the scope and quality of EIAs vary widely throughout the country. Similar study carried by Mwalyosi and Hughes (1998) showed that environmental awareness among the general population in Tanzania was low and lack of EIA legislation kept the whole issue of EIA process poor.

George[244] attributed the wide variation in the extent and quality of regulatory form and practical application of EIA in different developing countries. These factors included social, economic, political and cultural processes, administrative systems and natural resource systems, ecological systems and human systems (see Table 2). Table 2 indicates the preference for EIA systems in developing countries.[245]

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[242] Kakonge, John O. EIA and Good Governance: Issues and Lessons from Africa. Environmental Impact Assessment Review, 1998, 48: 289-305.

[243] Mpotokwane, Masego & Keatimilwe, Kagiso. Botswana: Summary and Future Focus. Southern African Institute for Environmental Assessment (SAIEA), Windhoek, Namibia. 2003. (Mpotokwane & Keatimilwe 2003).

[244] George, Clive. Comparative review of environmental assessment procedures and practice. In: N. Lee and C. George (eds.) Environmental Assessment in Developing and Transitional Countries. John Wiley and Sons: Chichester. 2000a: 35 (George 2000a:35) as cited in Wood, Christopher. Environmental impact assessment in developing countries: an overview. In: Conference on new directions in impact assessment for development: methods and practice (Vol. 24). Manchester, United Kingdom: EIA Centre School of Planning and Landscape University of Manchester. 2003:4-5. (Wood 2003:4-5),

[245] [245] Kakonge, John O. EIA and Good Governance: Issues and Lessons from Africa. Environmental Impact Assessment Review, 1998, 48: 289-305.

Table 2. Performance of environmental impact assessment system in developing country.[246]

Criterion	Criterion Achieved	Remarks
1. Is the EIA system focused on clear and specific legal requirements?	No	Legislation seldom specifically delivers well-defined environmental impact assessment process incorporated into other decision-making processes.
2. Is it necessary to examine most relevant environmental impacts of all-important actions?	No	Very important projects often covered but environmental impact assessment not necessarily implemented. Some straight and accumulative environmental impacts not covered.
3. Should evidence of the consideration, by the proponent, of the EI of reasonable alternatives to proposed action be indicated in the environmental impact assessment process?	No	Alternatives, comprising the 'no-action' and the 'environmentally preferable alternatives,' are rarely chosen.[247]
4. Is there a need for the screening of actions for environmental importance?	Partially	Lists of tasks, thresholds and criteria often allow considerable discretion.
5. Should scoping of the environmental impacts of actions be executed and specific guidelines be made?	No	Scoping, particularly including the public is scarce.

[246] Slightly modified from Wood, Christopher. Environmental impact assessment in developing countries: an overview. In *Conference on new directions in impact assessment for development: Methods and practice* (Vol. 24). Manchester, United Kingdom: EIA Centre School of Planning and Landscape University of Manchester, 2003:7 (Wood 2003:7).

[247] Wood 2003:7.

6. Should EIA reports meet pre-requisite content requirements and do checks to avoid the issue of incomplete EIA reports exist?	No	EIA review process and implementation reports are often recorded respond to donors' requirements. Only a few numbers of checks exist.
7. Should EIA reports be publicly evaluated, and the proponent respond to the comments pointed out?	No	EIA review process and implementation reports are poorly done but improving. Scarce for proponents to say something in response to points raised. Public rarely involved.
8. Should the results of the EIA report and the evaluation be a principal determinant of the decision on the activity?	No	Even though environmental impact assessment theoretically determines decision, in practice, this is seldom.
9. Should monitoring of environmental impacts be carried out and is it connected to the previous stages of the EIA process?	No	Few specific conditions concerning monitoring and comparison with criteria exist. Practice rare.
10. Should the mitigation of environmental impacts be measured at the various stages of the EIA process?	Partially	Mitigation is the most important element of EIA in developing countries but implementation practice often unsatisfactory.
11. Should consultation and involvement commence before and afrer EIA report publication?	No	Formal requirements for consultation and public participation in both scoping and review are almost always absent.
12. Should the EIA system undergo monitory and, if possible, be amended to integrate response from experience?	No	EIA system monitoring almost completely absent but modifications to EIA procedures take place as experience gained or under development assistance agency pressure
13. Are the financial expenses and number of days or period of time of the EIA system augur well for those involved and are they considered to be greater than visible environmental benefits?	No	Probable many people consider the financial expenses and time costs of environmental impact assessment are greater than its benefits.
14. Is the EIA system applicable to important programmes, plans and policies, as well as to projects?	Partially	Some experience of strategic environmental assessment (SEA) practice because of development assistance agency motivation.

A mention can be made of the South African wind-turbine project, the Angola/Namibia dam project, and the Shell project in Nigeria – to explain some significant facts regarding the use of EIA procedures for sub-Saharan Africa. The key problem reported in the case studies is a lack of commitment by respective governments to the EIA process.

Kennedy[248] concluded that the EIA process produces high quality results provided it is performed in accordance with specific legal requirements for its application that may strengthen its enforcement, in situation in which an environmental impact statement (EIS) is carried out to identify, assess and explain the consequences of a proposed environmental activity on man and the environment and where responsible government officials are charged with responsibility of taking its outcomes into consideration when making a decision. He added that, a successful integration of EIA in projects includes project-planning process, *"procedures for screening, scoping, external review and public participation need to be a part of it."*[249] Sadler concluded with the following factors necessary for successful EIA process:

> "scoping, evaluation of significance, review of EA reports, and monitoring and follow-up."[250]

If an EIA system experiences failure in meeting a substantial number of evaluation criteria, it not only falls below the standards of international good practice but cannot be helpful in providing its proposed environmental protection benefits.[251] With respect scoping of impacts, a few EIAs in developing countries seem to be produced with the help of project-specific procedures. This necessitates a quest for interdisciplinary teams with indigenous expert contribution to address these problems.[252] With respect to monitoring and auditing of environmental impacts, Wood[253] noted that as practised in the developed world, legislated monitoring requirements have

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[248] Kennedy, W. V. Environmental impact assessment in North America, Western Europe: what has worked where, how and why? *International Environment Reporter*, 1988, 11: 257-262. (Kennedy 1988) as cited in Wood (2003).

[249] Ibid.

[250] Sadler, Barry. Environmental assessment in a changing world: Evaluating practice to improve performance. Final report, International Study of the Effectiveness of Environmental Assessment. Hull, Quebec: Canadian Environmental AssessmentAgency.1996: iv (Sadler 1996: iv).

[251] Wood 2003:8.

[252] Wood 2003:9.

[253] Wood 2003:16

been absent from EIA systems in Third World countries. Projects in Third World countries may highly change between approval and implementation and monitoring of environmental control structures may fall short of observations or monitoring. There is scanty specific information on the accuracy of predictions made in the environmental impact assessment in developing countries.

The need, according to Biswas,[254] requires suitable compliance monitoring be made a pre-requisite requirement of assistance to address these problems. The situation also called for a need for case studies that take into consideration post-completion audit of the impact development projects.

George[255] points out that an environmental management system, e.g. ISO 14001, should be initiated, with the view of minimising or preventing negative impacts and maximizing the positive ones during project management and operations**.** This structured approach may enable stakeholders to perform their duties with clear roles and responsibilities in the EIA task entrusted to them.

There is lack of impact mitigation commitments in relation to projects in developing countries. Although this factor is generally taken into consideration during the EIA process, it is rarely implemented.[256] The practice of EIA could be tremendously enhanced, as more and more responsibilities are entrusted to local environmental actors and experts in implementing mitigation measures.

Although it is generally acknowledged in the developed world that stakeholder involvement (e.g. consultation and participation) in EIA contributes to a more effective achievement of social and environmental benefits, and circumvents conflict, there is no tradition of consultation and participation in many developing countries.[257]

Adoption of environmental impact assessment (EIA) procedures is more usual in the majority of developing countries that are more connected to western European and North American models.

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[254] Biswas (1992), as cited in Wood (2003:16),

[255] George (2000), as cited in Wood (2003;16),

[256] Wood 2003:17.

[257] Wood 2003:17

3.1.2.2 Participation in EIAs in the Sudan: An overview

A study carried out by Moghraby[258] studied the history of EIA in Sudan and found that the report of the Equatorial Nile Project (ENP) of 1954 was probably the first ever EIA endeavour conducted in the developing world. He described the ENP as EIA in function but not in name.[259] According to Elmuntasir,[260] several other environmental and socio-economic evaluations were also undertaken. With respect to the introduction of EIA requirements, he also noted that the World Bank was the first to introduce it in 1989 through its Operational Directive 4.01 on Environmental Assessment, now Operational Policy 4.01.[261] Table 3 (adapted from[262, 263, 264]) shows some of the ElAs undertaken in the Sudan.

The examples mentioned in this study (see Table 3) are a few experiences with EIA in related fields which may influence forestry one way or the other. For instance, the effects of dam construction may unleash a horrendous flood on the environment and for that matter forest lands, therefore the effects of dams on the environment must be considered in EIA.

As other existing large dams, the Merowe dam (Table 3) may gather the fertile silt that keeps the downstream riverine agroforestry systems viable. This adverse situation may render a considerable number of downstream rural and

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[258] Elmuntasir, Ahmed M. I. 2008. A comparative Study of International EIA Guidelines and the Sudan EIA Experience. *Nile Basin Water Engineering Scientific Magazine*, 2008, Vol.1. (Elmuntasir 2008), citing Moghraby, Asim 1997. Water Management in Sudan, presented at IAIA 17th Annual Meeting, New Orleans, USA.

[259] Ibid.

[260] Elmuntasir 2008 citing Moghraby, Asim l. 1982, The Jongli Canal - Needed development or potential eco disaster? *Environmental Conservation*, 9(2): 141- 148 (Moghraby 1982); See also, Moghraby, Asim.I. and El Sammani, Mohamed 0. 1985, On the environmental and socio-economic impact of the Jongli Canal Project, Southern Sudan, *Environmental Conservation*, 12(l): 41-48 (Moghraby & El Sammani 1985).

[261] Elmuntasir 2008, citing Freestone, David. 1996, Legal dimensions of environmental management, Environmental Matters, 38-39 (Freestone 1996).

[262] Elmuntasir 2008.

[263] Ali, Osman M. Environmental impact assessment from a Sudanese perspective. In: Mary McCabe and Barry Sadler (eds), *Studies of EIA Practice in Developing Countries*, United Nations Environment Programme, Geneva, Switzerland. 2003 (Ali 2003).

[264] Elmuntasi, Ahmed, M. I. & Abdella, Elturabi D. "Sectoral Evaluation of EIA Practice in Sudan." *Int. J. Environ. Res.,* 2011, 5(1):189–204. (Elmuntasi & Abdella 2011).

urban lives at major risk. [265]Conversion of forests to agricultural land and logging or cutting down trees for fuelwood may cause onsite land degradation as well as an upsurge in sedimentation rates in the reservoir. Reservoir impoundment of Merowe dam may induce a loss of 200 km of riverine farmland and habitat (flora and fauna), profoundly changing the downstream ecosystem of an area that supports a huge number of people.[266]

TABLE 3. List of EIAs conducted for various projects in Sudan (1988- 2006)[267], [268], [269]

Project Name	Year	Source
The Locust Control Project	1988	Ali 2003
UNICEF Handpumps Programme in Kordofan	1988	Ali 2003
Merowe Dam	1991	Ahmed 2008
Merowe Dam	2002	Ahmed 2002
Al-Lar agricultural project feasibility study	2006	Ahmed & Elturabi 2011

It is worth mentioning that EIA applications for projects in the river engineering sector and the agricultural sector were the most numerous, followed by the oil sector and infrastructure sector.[270] Sudan has put in place a legal framework and regulations for enactment of the EIA process. Nevertheless, guidelines and mechanisms, essential in terms of review and enforcement, and to assign responsibility and determine accountability are lacking in this legal framework. Besides, Sudanese standards have not been brought to current requirements, and this has consequently adversely affected their use. This condition may significantly affect the reliability of EIA recommendations for enhancing and protecting the environmental quality.[271]

The 1980s saw the development of environmental policies and action plans and the introduction of environmental impact assessment (EIA)

[265]UNEP. Post-Conflict Environmental Assessment Programme: Sudan. United Nations Environment Programme (UNEP). Nairobi, Kenya. 2007:228. (UNEP 2007).

[266] Ibid.

[267] Elmuntasir 2008.

[268] Ali 2003.

[269] Elmuntasi & Abdella 2011.

[270] Elmuntasi & Abdella 2011.

[271] ibid.

measures in many developing countries.[272] International agencies[273] including the United Nations and a range of governments and donors played a major role in promoting the application of EIA procedures. This being the case, this change focused on the applications and lacked a parallel evolution of effective methods of regulations and legislation with respect to international standards. Against this backdrop, many of these countries witnessed a wide-ranging gap between the designed concept and the implementation.[274] However, the most significant process to have had quite an impact on contemporary environmental legislation in the Sudan has been found to be associated with the 1992 World Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil[275] and Agenda 21[276] adopted in Brazil, acknowledged the current critical environmental and developmental issues facing the world today and aimed at attaining long-term goal of sustainable development.[277] The 1997 Special Session of the General Assembly to review implementation role of Agenda 21 reaffirmed the fundamental role of Agenda 21 as a basis for

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[272] Carter, Larry W. Environmental Impact Assessment. 2nd Ed. McGraw-Hill Inc., Singapore, 1996 (Canter 1996) and United Nations - Economic Commission for Africa (UN-ECA). Review of application of EIA in selected African Countries, 2005:189. (UN-ECA 2005) cited in Ahmed and Elturabi 2011.

[273] Ali 2003.

[274] UN-ECA 2005 The successful implementation of EIA procedures requires two significant efforts by conducting agency. In the first place, it is important for such agencies to be qualified, experienced and reputable. Secondly, they have to be non-polarized and operate independently. This being the case, these pre-requisite requirements are not strctly met. There are a huge number of agencies and consultants, all pretending to be qualified, experienced and skilled to carry out the task of ElAs for all types of projects. Such behaviours cast doubt on their impartiality and integrity of the agency to conduct assessment fairly and without bias (Ali 2003 ; Evers, Sandra ; Spierenburg, Marja and Wels, Harry, (eds.), *Competing Jurisdictions : Settling Land Claims in Africa*.The Netherlands : Koninklijk Brill NV, 2005**.** (Evers et al. 2005).

[275] Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3 – 14 June 1992, UN Doc. A/CONF.151/26 (Vol. I), 12 August 1992. (UNCED 1992).

[276] Report of the UN Conference on Environment and Development, Rio de Janeiro, 3 - 14 June 1992. UN Doc A/Conf.151/26 (1992), (UNCED 1992).

[Agenda 21 Programme of Action for Sustainable Development UN GAOR, 46th Sess., Agenda Item 21, UN Doc A/Conf.151/26 (1992)].

[277] United Nations Industrial Development Organization (UNIDO)/Ministry of Finance and National Economy, Sudan. Industry and Sustainable Development in Sudan: Achievements and prospects. Ministry of Finance and National Economy, Economic Review – Annual Reports 2001:3 – 4.

achieving sustainable development.[278] It was stressed that achieving sustainable development objectives required the integration of the three pillars of sustainability, namely economic, environment and social sustainability coupled with institutional components. It was also emphasised that the sustainable development goals could not be achieved without greater integration at all policy making and operational levels, including non-governmental organisations (NGOs) and local communities.

The 1997 Special Session for the General Assembly also called on all nations to expound national sustainable development strategies by the year 2002.[279] The Government of Sudan genuinely considered and adopted environmental policies after the United Nations Conference on Environment and Development, Rio de Janeiro, 3 – 14 June 1992[280] The Convention on Biological Diversity[281] signifies, at least in principle, an attempt for the Government of the Sudan to internationalise the conservation and sustainable use of natural resources, on the basis of the concept of biological diversity.

Broad endeavours have been made by the Government of the Sudan to incorporate the three pillars of sustainability, namely environmental, economic and social sustainability and goals into decision making by highlighting new policies and strategies for sustainable development and focus on the adoption of existing policies and plans. The most important of these are the requirement that an Environmental Impact Assessment be implemented before development projects get final endorsement.

In response to the sustainable development requirements and for the Government of the Sudan to propose legislation, policies, plans and programmes with the ultimate aims of preserving the country's wealth of forest and to achieve its development agenda, Sudan also signed the world convention and created the Ministry of Environment, Forestry and Physical Development. Environmental protection was additionally emphasised when environmental strategy was affirmed as a major aspect of the National Comprehensive National Strategy 1992 – 2002.

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[279] Report of the Secretary – General, Outcome of the nineteenth special session of the General Assembly, Environment and Sustainable Development Implementation of Agenda 21: Special Session for the Purpose of An Overall Review and Appraisal of the Implementation of Agenda 21, 14 August 1997. UN GA 52ND Sess., Agenda item 100, UN Doc A/52/280, Section 9 (a).

[280] Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3 – 14 June 1992, UN Doc. A/CONF.151/26 (Vol. I), 12 August 1992, (UNCED 1992).

[281] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 142. (CBD 1992).

The recommendations of the Report of the World Commission on Environment and Development: Our Common Future (Brundtland Commission Report),[282] the Rio Declaration on Environment and Development,[283] and Agenda 21[284] played a significant role in the formulation of national environmental policies (outlined in the 1987 draft National Environmental Protection Programme) into normative procedural prescriptions and institutional arrangements to enforce compliance of environmental standards as to the long-term environmental aims to be realized.

Legislation relating to environmental management is stated in the Environment Policy Act of 2001. Section 9, stipulates that:

> "EIA be undertaken where the quality of the environment is to be adversely affected upon implementation of major development projects. The authority entrusted with the responsibility of environmental management is the Higher Council for Environment and Natural Resources (HCENR)."[285]

This Environment Policy Act of 2001 defines a set of policy actions and institutional strengthening activities that will help Sudan's development strategy be more environmentally compatible.[286]

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[282] Report of the World Commission on Environment and Development: Our Common Future, 4 August 1987 (A/42/427, Annex). (WCED 1987);
United Nations General Assembly. Report of the World Commission on Environment and Development: Our Common Future. Oslo, Norway: United Nations General Assembly, Development and International Co-operation: Environment. 1987. (Transmitted to the General Assembly as an Annex to document A/42/427 - Development and International Co-operation: Environment); *See also:* World Commission on Environment and Development, Our common future. Report of the World Commission on Environment and Development (1987). Oxford: Oxford University Press, 1987).

[283] Rio Declaration on Environment and Development, in Report of the United Nations Conference on Environment and Development, UN Doc. A/CONF.151/26 (Vol. I), 12 August 1992, Annex I,

[284] Agenda 21 Programme of Action for Sustainable Development UN GAOR, 46th Sess., Agenda Item 21, UN Doc A/Conf.151/26 (1992).

[285]Elmuntasi 2008.

[286]Ali 2003.

Environmental Impact Assessment: Insights from forestry sector in the Sudan

Sudan is one of the countries in the developing world where Environmental Impact Assessment (EIA application) is confronted with many challenges. Although the practice of the EIA process is preserved in the Sudanese legal and institutional framework for environmental management of development projects,[287] the concept remains relatively new regarding development planning field.

An EIA forestry project may play important roles in a forestry project where the work proposed is expected to have a significant effect on the environment. For example, projects that propose deforestation for development will be expected to pass through an EIA process. Situations may emerge in which a forestry project forms part of a wider development project, such as a windfarm.

The Sudanese system does not provide for EIA in connection with traditional forestry measures that can cause significant environmental impacts, for example in areas such as:

- *Forest roads and paths:* the construction, change or maintenance of private roads and paths on land used or to be used for forestry purposes.
    - *Afforestation:* planting new trees and tree seedlings, including natural regeneration in an area that has previously not been forested.
    - *Forestry quarrying*: quarrying to acquire materials such as stone, gravel, sand, rock, clay and earth, required for forest road construction projects on land that is utilized, or will be utilized, for forestry purposes. An Environmental Impact Assessment forestry project is a forestry development programme in which the work proposed is probably going to significantly affect the environment.
    - *Deforestation:* clearing a vast area of woodland to use the land for a different purpose;

Environmental impact assessment (EIA) processes exist on paper in the Sudan yet are not adhered to in practice. The Environmental Framework Act of 2001 incorporates a fundamental EIA and approval process, which is not applied successfully to most projects,[288] including forestry projects. The legal necessity

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[287] Ahmed, M. I., & L. D. Abdella Elturabi. Sectoral evaluation of EIA practice in the Sudan. *International Journal of Environmental Research*, 2011: 190. (Ahmed et al. 2011).

[288] UNEP. Programme des Nations Unies pour l'environnement. *Sudan: post-conflict environmental assessment*. Vol. 1. UNEP/Earthprint, 2007:155 (UNEP 2007).

to obtain approval from the Forests National Corporation (FNC), on land allocation for any project, with respect to the potential impacts of tree cutting on the environment, needs a general framework policy law to accommodate for administrative guidelines to plan EIA.

Forest logging may have extensive adverse impacts on the natural habitat (environment). Such actions require an approval from the Forests National Corporation (FNC). To grant an approval, FNC ought to be completely educated regarding the impacts of such action on the natural habitat or environment prior to deciding of granting or denying the permit.

In the Sudan, the requirement for the necessary data and assessment has prompted the creation of a legal requirement to prepare EIA. In this way, EIA is a preventive as opposed to a remedial process, with the purpose of preserving and conserving ecosystems and natural resources, including forests, that extend across several agro-ecological zones and are home to a variety of fauna and flora.

Environmental Impact Assessment lacks legal basis in the Sudan but ad hoc EIAs have been conducted when required by *"international funding agencies and donor countries, and some sectoral EIAs are conducted on a voluntary basis."* [289] The Higher Council of Environment and Natural Resources is entrusted with the responsibility of developing EIA procedures and legislation[290]

The formation of EIA procedure is a legal approach that is vital in protecting the environment from adverse impacts of land development. To save important habitats from destruction and to be preserve and conserve them, it is of vital paramount importance that the effect of any proposed project which may essentially influence the environment be carefully assessed prior to approval.

Although, there was an early concern for the environment in the Sudanese law, there was not a genuine action, notwithstanding the Sudanese Environmental Policy Act of 2001 (EPA-2001), to carry out EIA studies upon planning major developmental projects. However, EIA is yet regarded as a new concept and various hindrances such as legislation and implementation, prevent the necessary performance of EIA studies.[291] However, common obstacles and challenges facing implementation of best EIA practices and compatibility with evolving international norms and standards are: *"the legal, institutional and*

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[289]Donnelly, Annie, Barry Dalal-Clayton and Ross Hughes. *A directory of impact assessment guidelines*, (2nd edition), International Institute for Environment and Development, London, UK. 1998:65 (Donnelly et al. 1998 (Donnelly et al. 1998:65).

[290] Donnelly et al. 1998:65.

[291]Ali, O. M. Policy and institutional reforms for an effective EIA system in Sudan. Journal of Environmental Assessment Policy and Management, 2007:68. (Ali 2007).
Elturabi, L. D. Assessment of Environmental Management in Various Developing Sectoral Projects: Systematic Analysis of EIA Practices, Dissertation, the University of Khartoum, 2007. (Elturabi 2007).

administrative frameworks; shortcoming of expert agencies and specialists, and other difficulties related to the data collection and measurement."[292]

Plans are expected to enhance capacity, strengthen the institutional, organizational, and legal framework, and additionally to improve the current state of EIA legislation and produce 'Guidelines for Best Practice' and environmental conservation and protection of forest and other resources. Apparently, in the long run, this process will synergize, complement and connect with legislation of countries benefiting from "*common environmental resources (such as the Nile basin countries), donors, and with the international community at large.*"[293]

As a matter of fact, most of the developing projects in Sudan are donor-funded, and implemented, operated and maintained by collaborative partners. It is the donors entrusted with the supervision and implementation of particular ElAs. There is no EIA legislation or mandatory requirements to adhere to the standard in the Sudan.[294] Several sectoral organizations deal with the administration of natural resources, laws and regulations of the environmental sector. More recently, the country has made an important step forward by promulgating comprehensive environmental legislation, the Environmental Protection Policy Act, awaiting the President's signature before its full implementation.[295] The following paragraph discusses the Environment Policy Act of 2001.

[292] Ahmed et al. 2011:189.

[293] Ibid:190.

[294]Ibid.

[295] Evers et al. 2005 :16.

The Environment Protection Act 2001

The Environment Protection Act 2001 replaces the Higher Council for Environment and Natural Resources Act of 1991, and clearly defines the responsibilities of various authorities at federal and state levels in terms of environmental protection, entrusting the overall direction in this realm to the Higher Council for Environment and Natural Resources. In reality, responsibilities for environmental protection are much more brought up by various agencies involved in resource use rather than by the Higher Council." [296] The Higher Council also has the role of drawing general policy, in coordination with the competent agencies, on natural resources, including to determine development and make efforts to rationalise the means of utilization, management and protection, from degradation thereof, in a balanced and integrated way that leads to enhanced ecosystem function.[297]

Various studies (e.g. Mohamed-Ali,[298] Environmental Impact assessment Profile of the Sudan [299]) have shown that the Environmental Impact Assessment was earlier managed on voluntary basis "until 2001 when the Environmental Protection Act (EPA) was enacted and became a legal"[300] requirement in 2001. The Sudanese practices lacked the experiences in applied EIA procedures/tool.[301] It has since been central to preventive environmental management in Sudan. EIA became mandatory in 1992 for specific development

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[296] International Food Policy Research Institute (IFPRI). Empowering the Rural Poor under Volatile Policy Environments in the Near East and North Africa Region Research Project: Sudan Case Study. With support of the Ministry of Finance and National Economy of the Republic of the Sudan and the International Fund for Agricultural Development (IFAD). 2006: 133. (IFPRI 2006).

[297] United Nations Environment Programme (UNEP). Environmental Governance in Sudan: An Expert Review. Nairobi, Kenya. 2012. p. 43, citing Government of Sudan. Environment Protection Act. (GOS/ EPA), Ministry of Environment and Physical Development. Higher Council for Environment and Natural Resources Secretariat General, Khartoum, 2001. (GOS/EPA 2001).

[298] Ali 2003.

[299] Environmental Impact assessment Profile of the Sudan, Netherlands Commission for Environmental Assessment (Commissie voor de milieueffectrapportage) Utrecht, The Netherlands. Available at:
http://www.eia.nl/en/countries/af/sudan/eia [Accessed : 16th January 2014] (EIAPS 2014).

[300] ibid.

[301] Ahmed and Elturabi 2011 citing Ali, 2003.

projects in both the public and private sectors. Ahmed and Elturabi[302] added that EPA acted as legal basis for EIA and in particular, specified EIA requirements for proposed projects that may have potentially substantial adverse environmental impacts. The foregoing could be described as a forerunner of EIA, to which the country gave a proper legal framework in 2001. Since 2001, many EIAs have been carried out throughout the country by the regime. EIA was then largely donor-driven process and made it donor-owned. Supervision and mentoring donor/project staff working on specific-based EIA activities formed prerequisite requirement for approval, releasing and the allocation of funds for specific projects.[303] The Higher Council for Environment and Natural Resources (HCENR) was entrusted with the responsibility of enforcing the EPA.

The Environmental Protection Act (2001) is a federal Act and was applied by both the Government of South Sudan (GOSS) and the Government of National Unity (GONU). Following the breakaway of South Sudan from the North (Sudan) in 2011, the EPA (2001) technically remained in force as the enabling law creating an Enabling Legal Framework for EIA implementation in the Republic of Sudan. The development of EIA guidelines started in 2013. [304] Sudan is one of the developing countries that encountered challenges in applying EIA prerequisites. Although an early environmental awareness through the Sudanese law, EIA process suffered a serious lack of application.[305] The poor performance of EIA practice in Sudan has been attributed to lack of environmental legislation, lack of administrative capacity, lack of technical capacity, lack of proper institutional structure to promote public participation, lack of capacity in communication strategy between government and the public, inadequate information provision, lack of transparency, late planning process of EIA procedure, lack of awareness about environmental issues, inadequate qualified personnel and weak local government institutions.[306]

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[302] ibid.

[303] Environmental Impact assessment Profile of the Sudan, Netherlands Commission for Environmental Assessment (Commissie voor de milieueffectrapportage) Utrecht, The Netherlands. Available at: http://www.eia.nl/en/countries/af/sudan/eia [Accessed: 16th January 2014]. (EIAPS 2014).

[304] ibid.

[305] Elmuntasi and Abdella, 2011: 189.

[306] Ali, Osman Mirghani M. Environmental impact assessment from a Sudanese perspective. In: McCabe, Mary and Sadler, Barry, (eds). Studies of EIA Practice in Developing Countries, United Nations Environment Programme (UNEP), Division of Technology, Industry and Economics and Trade Branch. Geneva, Switzerland. 2002: 1-6 (Ali 2002); Ahmed, Mohammed El.Muntasir and Abdella, Elturabi Lamya D. Sectoral Evaluation of EIA Practice in the Sudan. *Int. J. Environ. Res*., 2011, 5(1):190, 197 and 199. (Ahmed & Abdella 2011); Ahmed, Mohammed Elmuntasir and Abdallah,

In the absence of legislation, EIA is not considered obligatory, but is being pilot tested on a voluntary basis and mostly to meet donor conditionality.[307] The Act stipulates that for any large development project construction which might negatively impact the quality of the environment, an Environment Feasibility Study (EFS) must be undertaken.[308] The following passage, taken from FAOLEX Legislative Database of the FAO legal Office,[309] enumerates several dimensions of the Environment Protection Act 2001 of Sudan:

> "This Act consists of 5 Chapters divided into 27 articles: Introduction provisions (I); The High Council for Environment and Natural Resources (II); General Policies and Guidance for Environmental Protection (III); Offences and Penalties (IV); General Provisions (V)."[310]

The Environmental Protection Act of 2001 has the following objectives (a -d):[311]

a) "To protect the environment, and to conserve the purity, natural components and equilibrium of the environment; To develop and improve the environment as well as guide the use of natural resources.
b) To make a connection between environment and development.
c) To assure and confirm responsibilities of the environmental protection authority that seeks to protect people and the environment, and
d) To activate the function of the designated competent authority responsible for regulating environmental protection (art. 4). A High Council for Environment and Natural Resources will be established by a resolution of the Cabinet (art. 6)."

Lamya D. Environmental Impact Assessment Legislation & Practice for the Environmental Management at the Nile System. Conference on the Role of the River Nile in Poverty Reduction and Economic development in the Region, the Nile Basin Development Forum (NBDF), Addis Ababa, Ethiopia. 2006 (Ahmed & Abdellah 2006). *See also:* Kakonge John O. Problems with public participation in EIA process: Examples from sub-Saharan Africa, *Impact Assessment*, 1996, 14 (3): 309-320 (Kakonge 1996).

[307] Elmuntasir 2008, EIPAPS 2014.

[308] Ali 2003.

[309] FAOLEX. Environmental Protection Act of 2001, Sudan. FAOLEX Legislative Database of FAO Legal Office. Available at: http://faolex.fao.org/cgibin/faolex.exe?database=faolex&search_type=query&table=result&query=ID:LEX-FAOC054089&format_name=ERALL&lang=eng 2001. [Accessed: 17th January, 2014]. (FAOLEX 2014).

[310] Ali 2003.

[311] FAOLEX 2014.

Section III of the Act defines the general policies and principles of environment protection. It should be noted that these policies and principles are not legally binding, but are guidelines with the purpose of supporting concerned authorities in carrying out their responsibilities and to encourage good practice when formulating development policies.[312] These guidelines are summarised in articles 17 and 18.[313] Article 17 calls for action by any individual who plans to carry out any project that could have a detrimental effect on the environment, to submit an Environmental Impact Assessment (EIA) report for approval by the Monitoring and Evaluation Committee of the HCENR. The report should highlight the following information (i - v)[314]:

i) "The expected impact of the project on the environment;
ii) The detrimental effects that could be mitigated during execution of the project;
iii) Alternative choices for the planned project;
iv) A clear strategy for ensuring that the short-term exploitation of natural resources and the environment will not threaten their long-term sustainability;
v) The precautionary measures to be adopted to mitigate the negative impacts of the project"

On the basis of the foregoing considerations in Article 17, if habitat preservation and conservation are considered, it is important that drastic measures are taken to assess the impact of any proposed project which may significantly affect the environment, prior to final approval. In the forestry sector, for example, the logging of forests may have substantial negative effects on the natural environment. Such activities must be approved by the concerned authority. To grant approval, the authority should be as fully informed as possible of the effects the proposed activity will have on the environment before it takes its decision to grant free prior and informed consent to activities or refuse to issue the permit.

The primary objective of an EIA is to inform the concerned authority of a project's effects on the environment. The purpose here is to assist decision makers in considering the proposed project's environmental costs and benefits.

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[312] Hamid, Abdel, Mwinturubani, Donald A. and Osiro, Deborah. Nature and extent of environmental crime in Sudan. Situation Report. Institute for Security Studies, Pretoria, South Africa, 2010: 19 (Hamid et al. 2010).
[313] ibid. p. 20.
[314] ibid. p. 20.

Where the benefits sufficiently exceed the costs, the project can be viewed as environmentally justified.[315]

Article 17 envisages that the legal requirement to obtain formal approval from the Forests National Corporation, before allocating land to any project, as regards the effects of removal of trees on the environment, needs the rule of law as an umbrella principle or a general framework policy law to provide for administrative guidelines to prepare EIA.

Article 18 lists the duties of the competent authority designated for the application of the general environmental policies and directives, as follows (I - vii)[316]:

i) "Laying down environmental quality control standards for the protection of the environment;
ii) Preserving water sources from pollution;
iii) Protecting air, food, soil and vegetation cover from pollution and degradation
iv) Preserving the plants and animals from extinction due to illegal hunting or any other anthropologic decimating factors;
v) Protecting food from contamination or pollution by chemicals or any other factor;
vi) Protecting the air from pollution due to physical operations or chemicals;
vii) Preserving the soil from any pollution as a result of harmful industrial and other types of waste".

Article 18 indicates that EIAs are mandatory for projects affecting the environment and are controlled by EIA specialists, while a federal government committee follows up on the implementation of EIA provisions.[317]

The EIA assigns a central role to inform the concerned authority of a project's impacts on the environment. It also upholds that environmental concerns are incorporated into project planning. The need to integrate environmental consideration into planning is to help decision makers in considering the environmental costs and benefits of the proposed project. Where the marginal benefits exceed the marginal costs to justify the expenditures, the project can be considered to be environmentally justified.

The need to meet all the standard requirements and evaluation criteria has resulted in the formation of a legal requirement to prepare an EIA. Based on the

[315] Kanoan, Gorashi M. Some Institutional Aspects of the Management of the Forest Resources in Sudan. Institute of Environmental Studies, Khartoum, 1995: 72 (Kanoan 1995).
[316] Hamid et al. 2010: 20.
[317] ibid.: 23.

foregoing, EIA is a preventive rather than a remedial process, and is used for preservation and conservation of ecosystems and natural resources.[318]

The work of Ali[319] suggests that the federal system of government adopted by Sudan makes the proper implementation of the EIA process insignificant by comparison. Potential conflicts over land and natural resources could take place between various States. The transfer of power or authority regarding the Comprehensive Environmental Legislation, from the central government to State levels needs the executive power to render it efficient. It is recommended that the central government strengthens its internal power by boosting sound policies, legislation, foreign affairs relations and coordination.

As mentioned earlier, more recent evidence on the EIA practice in Sudan has been described as poor due to the lack of environmental legislation, lack of administrative capacity, lack of technical capacity, lack of proper institutional structure to promote public participation, lack of capacity in communication strategy between government and the public, inadequate information provision, lack of transparency, inadequate qualified personnel and weak local government institutions.[320] With reference to the work of Hamid et al.,[321] the key gaps in the existing training landscape that need to be addressed in the Directorate of Environmental Affairs in the federal government include gaps in: knowledge of environmental law; implementation of the law; and specialised surveillance and investigation skills, in particular at field-staff level. Other significant training gaps are knowledge of the principles and procedures of EIAs.[322]

Figure 1 shows the general process for conducting EIA in the Sudan. The key steps involved the submission of a project profile by the project applicant or a proponent's environmental consultant to the Director of HCENR for evaluation. This profile consists of initial EIA project details.

The EIA report is expected to cover various assessment results and mitigation measures for the environmental impacts the proposed project may

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[318] Kanoan 1995:72.

[319] Ali 2003.

[320] 'In attempts to evaluate the effectiveness of the EIA process that is protected by being included in the legal and institutional framework of the Sudan, Sudan engaged in the preparation by assessing nine projects -designed as case studies. Although the EIAs have been found to perform in conformity with existing legislation and guidelines, assessment results have been found to expose grave problems in conducting these appraisals such as the lack of the most important steps in the EIA process. Consideration of Cost-Benefit Analysis, or more direct post project follow up may provide guidance to establish uniform accounting for these oversights in upgrading policies, legislation and guidelines of the Sudan.' (Elmuntasir 2008; see Table 4).

[321] Hamid et al. 2010: 33.

[322] Ibid. p. 33.

create during the project construction, operation, decommissioning and post decommissioning phases. The EIA report should also have a component of alternatives for the proposed project. The project applicant may submit the environmental impact statement (EIS)[323] to the Director of HCENR along with the application for evaluation and approval.

A committee commissioned by HCENR reviews the submitted EIA report according defined terms of reference for full EIA. The approval of an EIA report qualifies the applicant to apply for an environmental permit to carry out the proposed project. The permit system spells out a number of environmental conditions to be carried out by the applicant for the protection of the environment in relation to the proposed project. Upon final acceptance of the EIA, the project applicant is given a permission to implement the project.

[323] An Environmental Impact Statement (EIS) is a tool that is used in decision making process. It describes the advantage and disadvantage of environmental impacts of a proposed activity, and it often spells out a few available alternative course of action that may be chosen instead (State of Queensland. Generic Draft Terms of Reference for an Environmental Impact Assessment. Statewide Environmental Assessments Unit, Department of Environment and Heritage Protection. 2013).

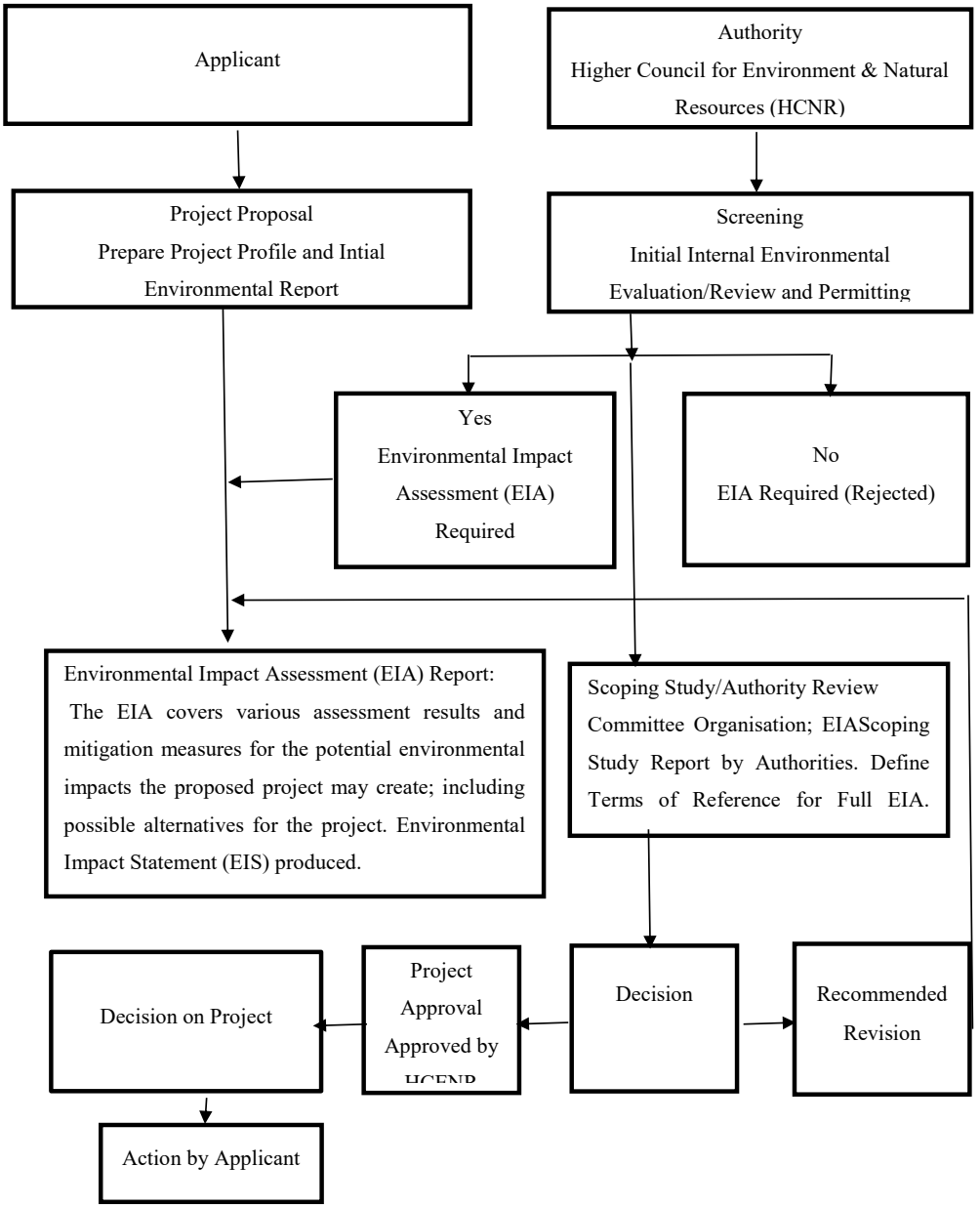

Figure 1. The main steps in EIA process in the Sudan.

3..1.2.3 Environmental permitting and licensing systems

(i) Introduction

"*Environmental problems, it is said, do not stay within political boundaries, but the repercussions of environmental degradation affect many people and linger for a long time"*[324] which is why a need for international agreements and regulatory measures has increased. In a recent comprehensive study, Hallberg [325] identifies that an important point to consider when strategizing development of laws and regulations is to ensure availability of different types of prohibitions, environmental permits and conditions linked to them as well as compensations for environmental damages. He added that these systems may play important roles in ensuring that environmental requirements are designed to address the circumstances related to specific facilities. A pre-requisite requirement of these systems is to develop permit application procedures, process applications and issue in coordination with other lead agencies.[326]

The matter of licences and permits is a valuable implementation tool for the prevention of environmental harm. This system allows countries, institutions or individuals to establish and enforce admissible concentration limits of specific pollutants, which are allowed to enter the environment. It regulates the quantity of substances released into the water and thus prevents water pollution. The holder of a licence or permit means that such a person cannot dump contaminants in any environmental media, and vice versa in the absence of a permit or licence. Situations like this may minimize waste while preserving and safeguarding environmental qualities. All installations which act as sources of hazardous waste would be required to register with the agency for identification numbers, licences and permits.

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[324] Glover, Edinam K. and Lawrence, Yomo. Agroforestry Practices among Smallholder Farmers of Southern Sudan: Sustainable Land-use, Agrobiodiversity and Food Security. VDM Verlag, 2010:1 (Glover & Lawrence 2010).

[325] Hallberg, Pekka. Rule of Law in a Global Context. In: Hollo, E. J. (ed.), Environmental Law Studies: Human Rights and the International Environmental Law. *The Journal of Environmental Law (Ympäristöjuridiikka)*, 36: 11–28, 2012). (Hallberg 2012).

[326] ibid.

(ii) Environmental permitting and licensing systems in the Sudan

The Forests Act, 1989 of Sudan, seeks to establish some provisions against activities that are prohibited or limited in a reserved area or in an area where the reservation process has not yet been completed. The Act also deals with activities outside a reserve. These provisions tackle issues that may hinder the management and conservation of forests. Against this backdrop, Article 15(1) of the Forests Act 1989 seeks to establish a coherent framework for dealing with acts absolutely prohibited in a reserved area. This Act states that "No person shall act or cause any of the following acts in a reserved area or in an area the reservation procedure of which has not yet been completed":[327]

a) "Kindling, keeping, in a reserve; carrying or causing a fire in a reserve;[328]
b) Entering into a reserved area or staying therein, except for those persons who manage such reserve in accordance with section 11;[329]
c) Cutting, collecting, taking, destroying, injuring, otherwise produce' collecting, converting to private benefit or otherwise interfering in any other way with forest produce;[330]
d) Pasturing animals or admitting them or causing their entrance or allowing them to remain within a reserved area; [331]
e) Introduction of any harmful materials, liquids or otherwise, or throwing or burying any waste material;[332]
f) Removing or transferring, destroying, or damaging or interfering with any boundary mark or blazed tree or fence of a reserve."[333]

In spite of the provisions of sub-section (1), there are a few exemptions allowed from the prohibition or restriction exercised by the concerned authority:

> "… the body responsible for the management of reserved areas in accordance with section 11 may permit any person to do any of the acts mentioned in paragraphs (a), (b), (c) and (d) for scientific or recreational purposes or for purposes which are necessary for the development and production of the forest produce subject to such conditions and restrictions as provided for in such permit."[334]

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[327] Article 15(1) of the Forests Act 1989
[328] The Forests Act 1989, S. 15(1)(a).
[329] The Forests Act 1989, S. 15(1)(b).
[330] The Forests Act 1989, S. 15(1)(c).
[331] The Forests Act 1989, S. 15(1)(d).
[332] The Forests Act 1989, S. 15(1)(e).
[333] The Forests Act 1989, S. 15(1)(f).
[334] The Forests Act 1989, S. 15(2).

From the foregoing, it may be concluded, that the central idea behind these provisions against activities that are prohibited or restricted in a reserved area or in an area where the reservation process has not yet been completed, means: to protect the long-term productivity of forest ecosystems- to the best of humans' biological, social, and economic understanding.

In the case of activities outside a reserve and in the exercise of the powers conferred under section 16 of the Forests Act, 1989 of Sudan, the following rules enacted to regulate the movement of Forest Produce by land routes into, from and within the territorial boundaries of Sudan, namely:-

Prohibitions as regards transport of forest produce:

> "No person shall transport or attempt to transport any forest produce by any means of transport without obtaining a permit from the competent authority; provided that such forest produce transported or about to be transported shall conform with that included in the permit as regards, kind, quantity, date, place transported thereto place and any other information contained in such permit in the form specified by the regulations.[335]

Permit issuing authority:

> "For the purposes of subsection (1) the general manager or to whom he may delegate his powers shall be the authority issuing permits in the case of forest produce taken from the national forests and the area councilor to whom it may delegate its powers shall be the authority issuing permits in case of the regional forests or other forests falling within its area of jurisdiction.." [336]

Production of license or permit for examination:

> "The driver of the means of transport shall carry with him throughout the time he is transporting the forest produce the permit and shall present it as and when he is asked to do so".[337]

Failure to produce such license or permit on such request shall, for the purpose of sub-section 3 of section 16, be deemed to be an infringement of this rule.

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[335] The Forests Act 1989, S. 16(1).
[336] ibid. S. 16(2).
[337] ibid. S. 16(3).

Purchasing or obtaining forestry produce:

Purchasing or obtaining forestry produce is not allowed unless it is accompanied with a removal pass from the competent authority.

It is documented that revenue that is derived from the sale of forest products obtained from outside forest reserves relied on licenses issued by the General Manager of Forests National Corporation. In the case of procurement of forest products from inside reserves, e.g. riverine forests or irrigated forest plantations, use tendering procedure.[338]

In attempts to motivate people to use forest reserves, in which regeneration of exploited species, and forests is guaranteed, and to prevent indiscriminate exploitation of the woodlands of Sudan, licenses represents prepaid approval of the issuing authority for cutting of forests or gathering and use of non-wood forest products. Forest reserves or areas allocated for agriculture are often sources of fuelwood.[339] In exercise of the powers conferred under section 18 of the Sudanese Forests Act, 1989, the following rules are promulgated to regulate license for trees cut or consumed for trade purposes, namely:-

License required where trees cut or consumed for trade purposes:

"No person shall cut, take, consume or utilize for any purpose any growing or fallen trees in any land under the disposal of the government outside the reserved areas or utilise or consume any tree or the produce thereof, save with the permission of the general manager or delegate thereof." [340]

License for private sawmills using mechanical means:

The contribution of small- and medium-sized forest enterprises in economic development cannot be overemphasized: Sawmilling, furniture and joinery manufacturers are few examples of such enterprises in rural areas that help in job creation and establishment of new industries. They contribute in income generation, help ensure local *"... resource base and the environment for the benefit of future generations"*[341] and play significant role in the preservation of indigenous knowledge and market niches.

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[338] Gafaar, Abdalla. Forest Plantations and Woodlots in Sudan. *African Forest Forum Working Paper Series*, 1(15), 2011: 52.

[339] ibid.

[340] The Forests Act 1989, S. 18(1).

[341] Agenda 21 Programme of Action for Sustainable Development UN GAOR, 46th Sess., Agenda Item 21, UN Doc A/Conf.151/26 (1992). (Agenda 21 1992), Chapter 8.7;

However, conservation measures are spelled out in the Forests Act, 1989 regarding the control of establishing sawmills to reduce deforestation and forest degradation. Subject to the provisions of Article 19 of the Forests Act, 1989, no person shall establish any sawmill in the Sudan, save after obtaining a license, from the Board of Directors of the Corporation, as the case may be, in accordance with the provisions of this Act. Thus, Article 19 of the Forests Act, 1989 was enacted for establishing wood and wood-based industries using mechanical means as follows:

> "No person shall construct any saw-mill that uses mechanical means for modulating local round wood (natural & planted logs) save with a permit from the Board of Directors of the Corporation as specified by regulations. [342]

Again, pursuant to provisions of Article 20 of the Forests Act, 1989, no person shall acquire or convert forest land to any project for any purpose, save after obtaining a license therefor, from the Forests National Corporation, as the case may be, in accordance with the provisions of Article 20(1) of the Forests Act, 1989 which states that:

> "On allocating land to any project for any purpose, the Corporation shall be notified in adequate time for obtaining its approval as regards the existence or absence of forests, the number of trees and possibility of disposal of such trees and the effect of removal of the same on the environment. "[343]

The cutting, conversion or removal of trees may be granted solely under and in accordance with the terms and conditions of a license or permit in this behalf by Forests National Corporation. In this regard, Article 20(2) states that:

> "Subject to the provisions of subsection (1), the owner or tenant of the land shall convert the trees of such forests, when cut, to forest produce, and shall also inform

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See also: UNCED (United Nations Conference on Environment and Development), United Nations, 'Agenda 21', UNCED, Brazil, June 1992). Available at: <http://www.un.org/esa/sustdev/documents/agenda21/english/Agenda21.pdf> Accessed: 21st November, 2012]. (UNCED 1992).
The above information is specifically stated about adopting a National Strategy for. Sustainable Development.

[342] The Forests Act 1989, S. 19.

[343] The Forests Act 1989, S.20 (1).

the Corporation of the felling operations so as to revise the percentages provided for in subsection (3)(a) and (b)."[344]

In attempts to consolidate the law relating to forests, investors are advised that cutting of trees and conversion of timber obtained therefrom into logs, planks and other articles for the purpose of full utilization of timber, undoubtedly, falls within the Forests Act, 1989.[345] This is to guard against the combustion of wood and wood wastes to wood ashes, a practice caused by lack of transport of such wood and difficulty attributed to on-site production of charcoal.[346]

Developmental and sustainable management of communal, private and small holdings farm forestry increase forest product supply and reduce the pressure on natural forests. Irrigated plantation, whether on communal, private or irrigated schemes significantly increase output since the productivity and increment are much higher than that of the naturally regenerated forests.[347] Mechanized scheme farmers adopt tree planting as stated in the lease contract. [348] For the purpose of clause (a) of sub-section (3) of section 20, shelterbelts should constitute about 10 % of the total of any mechanized farm area: Article 20 (3) (a) of the Forests Act 1989 states:

Subject to the provisions of subsection (2), the following percentages shall remain in effect, in terms of agricultural investment, to form part of the green belt. Lands within the green belt remain green to protect the unique climate and enhance production:

"(a) A percentage not less than 10% of the total area of a rain fed project;
(b) A percentage not less than 5% of the total area of an irrigated project"

Section 20(2) of the Forests Act, 1989 in clear terms provides strategic approach to fulfil national objectives including: providing environmental services such as soil or watershed protection, carbon sequestration or prevention of land degradation; measures to combat desertification, improve biological

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[344] The Forests Act 1989, S.20 (2).

[345] The Forests Act 1989, S.20(1).

[346] Yassin, Muna A. The Nature of Land Laws in Sudan (with Specific Reference to Forestry). Ministry of Energy & Mining, National Energy Administration, Sudan.1983. (Yassin 1983).

[347] Elsiddig, Elnour A. Management of Dryland Forest Reserves in Sudan based on Participatory Approach. In: Alsharan, A. S., Wood, W.W., Goudie, Andrew S., Fowler, A. & Abdelatif, E.A. Desertification in the third millennium. Lisse, The Netherlands: Balkema Publishers, 2003: .361-364. (Elsiddig 2003).

[348] Glover 2005:60

productivity and reverse the declining trends of natural systems and sustainable supply of forest products of which fuelwood is at present the major energy source at the urban and rural centres.

According to Glover[349] the Investment Act of 1990 and the Ministerial Order 345/95 also spelled out legal requirements for conformity: Conformity assessment requirements for the operation of mechanized farms require land managers to conform to the allocation of 10 and 5% of their mechanized and irrigated farmland, respectively, for forestry (shelterbelts or windbreaks) in the case of new licenses. Investors are also obliged to leave 10% of their holdings intact[350] (i.e. not to clear cut the required percentage area).

This legislation has been re-echoed in the Comprehensive National Strategy (CNS) for socioeconomic development (1999-2002) which has been formulated and enacted by the Federal Government. The CNS, is noted as Sudan's provisional Action Plan for Agenda 21. The CNS called for the integration of trees with arable crops and thus supported agroforestry systems.[351] According to Elsiddig, [352] funding of shelterbelts establishment and management is supported by the Ministry of Agriculture in Gedaref State, Mechanized Corporation, Forests National Corporation and Farmers' Union.

Administratively, establishment and protection of these belts are under the management of the board of directors chaired by the Gedaref State minister assisted by an executive committee chaired by the manager of FNC of Gedaref State. The executive committee is entrusted with the responsibility of monitoring and evaluation of the reforestation programme and shelterbelts plan execution. The committee solves all problems and constraints related to technical and financial aspects as well as the mechanisms of programme execution.[353]

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[349] ibid.

[350] Ministerial Order No. 345, 1992.

[351] Glover 2005:70.

[352] Elsiddig, Elnour A. Investigation on management systems in natural forest reserves: Case study: Elrawashda and Wad Kabo. A consultancy report for FAO/FNC, Khartoum.1996, 80 p. (Elsiddig 1996).

[353] ibid.

3.1.2.4 Public awareness and participation

(i) Introduction

The idea of public participation – or procedural environmental rights – is nowadays widely accepted as a necessary ingredient of environmental policy and law in the industrialized world. It is also generally seen to contribute significantly to the legitimacy of environmental policy and law. These rights may refer to the right to obtain information on a public document including environmental information, the right to be heard (including the right to take part in the preparation of a matter by e.g. presenting opinions on it), and the right of access to courts.[354] In the discourse concerning these rights it has been presented e.g. that the right decisions are more likely to be made in open, democratic procedures, than closed ones.[355] It has also been pointed out that substantive rights are, in fact preconditions to the realisation of democracy.[356] This type of connection has also sometimes been denied, or at least seen as being based on mere belief with no empirical foundation.[357] According to Wasserman[358] a lack of knowledge or technology can act as significant impediment to compliance. This impediment can be removed by offering education, outreach, and technical assistance.[359] In a recent study conducted by Hallberg[360] it was realized that globalisation affects the conditions for participation and the promotion of democracy through several channels. He added that globalization directed by free trade and economic interdependence, poses a severe conflict to the development of democracy. He further argued that the conflict emerges when the nation-state actors play dominant role in economic development and global competition in lieu of participatory forms of engagement.

The importance of renewable natural resources for the local economy and livelihood is often ignored, for instance in conservation planning. Agenda 21

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[354] Kumpula, Anne M. Ympäristö oikeutena (Suomalaisen Lakimiesyhdistyksen julkaisuja 2004, A-sarja No 252, 13-14. (Kumpula 2004).

[355] See Saward, Michael. 'Green Democracy?' In: Dobson, Andrew and Lucardie, Paul (eds), *The Politics of Nature*: *Explorations in Green Political Theory,* Routledge, 1993, 76: 84-88.

[356] See also Kumpula 2004:16–17.

[357] See Määttä, Tapio. 'Ympäristö eurooppalaisena ihmis- ja perusoikeutena: kohti ekososiaalista oikeusvaltiota' in Liisa Nieminen (ed.), Perusoikeudet EU:ssa. Helsinki: Lakimiesliiton kustannus, 2001. (Määttä 2001).

[358] Wesserman 1992: 4.

[359] ibid. p. 4.

[360] Hallberg 2012: 36: 11–28.

emphasizes local participation in sustainable development which implies, decision-making in natural resource management should be decentralized to the community level. Local natural resources play a crucial role in the alleviation of poverty, the provision of employment and creation of economic growth in the developing countries. Regulation can contribute to the implementation of sustainable forest management (SFM) through policies, based on the *principle of shared responsibility*.[361] These implementation problems are crucial when it comes to the sustainability of the forest management and forestry. There is uncertainty about the individual right to sustainability *in abstracto* owing to the fact that in material terms, sustainability refers to public and abstract goals (of future generations), and not in all situations to individual needs.[362]

The successful role played by the market as a form of global governance further erodes the prospect of democratic development. On the basis of the foregoing, Hallberg[363] concluded that democracy should be examined as a system concerning the activities of whole society. This has earlier been the starting point when the classic liberal rule of law, the democratic rule of law and the social dimensions of the rule of law have been distinguished as the different development stages of the rule of law.[364] Procedural justice describes situations differently due to the applicable rules of participation. The maintenance of forested areas is important not only to the livelihoods of the local people (social and economic sustainability), but also to the biological diversity, preservation of species, as well as to the mitigation of and adaptation to climate change (environmental sustainability). Avoided desertification is one of the benefits acquired from avoided deforestation.

The Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental matters which took place in Aarhus in Denmark on 25th June, 1998,[365] brought the need for greater public

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[361] The "*principle of shared responsibility"* has also been developed in replacement for the practice of the free exploitation of oceans and polar areas or the atmosphere (Hollo 2012). He added that regulation constitutes a significant step towards the adoption of the principle of shared responsibility to enable a sound management of the environment and protection of international media, and establish solidarity and equality between states, regions and peoples by various international and regional governments; in attempt to boost regional actors to promote development of the principle e. g. The EU strategy for the protection of the Baltic Sea (Ibid.).

[362] ibid.

[363] Hallberg 2012, 36: 11–28.

[364] Ibid.

[365] Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention), 25 June 1998, United Nations, Treaty Series, vol. 2161, p. 447; *See also:* The Aarhus Convention,

awareness and participation as a key requirement for enforcement of legislation, in sharp public focus. Article 3, section 2 of the Aarhus Convention stresses that:

> "each party shall endeavour to ensure that officials and authorities assist and provide guidance to the public in seeking access to information, in facilitating participation in decision-making and in seeking access to justice in environmental matters." [366]

These rights guarantee and empower citizens to ensure that environmental laws are properly enforced and complied with. The Aarhus Convention, concluded within the Economic Commission of Europe of the United Nations, is so far the only international treaty concerning public participation and the procedural rights in environmental matters, binding in Europe. It is noted that the 2002 Johannesburg Plan of Implementation (JPOI), adopted at 2002 Johannesburg World Summit on Sustainable Development ("WSSD" or "Summit") stresses the need to:

> "ensure access, at the national level, to environmental information and judicial and administrative proceedings in environmental matters, as well as public participation in decision-making, so as to further principle 10 of the Rio Declaration on Environment and Development … " [367]

while the Johannesburg Plan of Implementation (JPOI), under (Strengthening institutional frameworks for sustainable development at the national level), Chap. XI (H), para. 164 of WSSD Plan exhorts:

'Convention on access to information, public participation in decision-making and access to justice in environmental matters' (The Aarhus Convention 1998 (a)). Available at:
http://www.unece.org/fileadmin/DAM/env/pp/documents/cep43e.pdf [Accessed: 22nd November, 2012]. (Aarhus Convention 1998). *See:* The Aarhus Convention. Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. 1998. Aarhus, Denmark.
Available at: http://www.unece.org/fileadmin/DAM/env/pp/documents/cep43e.pdf [Accessed: 5th May, 2012] (Aarhus Convention 1998(b)).

[366] ibid.

[367]Report of the World Summit on Sustainable Development, 2002 (A/CONF.199/20), Resolution 2, Annex (Plan of Implementation of the World Summit on Sustainable Development), chap. X, para. 128, p. 53.

> "all countries should also promote public participation, including through measures that provide access to information regarding legislation, regulations, activities, policies and programmes. They should also foster full public participation in sustainable development policy formulation and implementation. Women should be able to participate fully and equally in policy formulation and decision –making".[368]

According to Hollo,[369] the (UN-ECE) Aarhus Convention concentrates on information and procedure, not material rules. He added that, the Convention relates to environmental rights and social human rights; it is based on the concept of sustainable development. The concept of sustainable development is to maintain the environment for the present and future generations; is centred on the principle that sustainable development can be achieved only through the participation of all stakeholders; relates to government accountability and environmental protection; concentrates on interactions between the public and public authorities in a democratic context. [370]

In a recent comprehensive review, Hallberg[371] identifies the following main characteristics of "democratic participation in information society": The legitimacy of decision-making is measured by trust. This is characteristic of the democratic system of decision-making. Terms such as: representative democracy, interest group democracy, direct democracy and participatory democracy, have been the subjects of considerable debate among scholars for decades. In addition, network democracy and tele-democracy are distinguished, but these expressions actually describe the technical aspects of participation. An accountable parliament, government, city council, city executive board, municipal board, or body of civil servants is always needed to conduct common policies and to make decisions.[372]

According to United Nations countries should also foster full public participation in the sustainable development policy formulation and implementation. Women should be able to participate fully and equally in policy formulation and decision –making."[373] On the capacity building front, institutions such as UNEP, the Global Environmental Facility, and the United

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[368] Report of the World Summit on Sustainable Development, 2002 (A/CONF.199/20), Resolution 2, Annex (Plan of Implementation of the World Summit on Sustainable Development), chap. XI(H), para. 164, p. 61.

[369] Hollo, Erkki J. Environmental Law Seminar 2013, Faculty of Law, University of Helsinki, Finland. 2013:7 (Hollo 2013).

[370] ibid.

[371] Hallberg 2012, 36: 11–28.

[372] ibid.

[373] UNWSSD 2002.

Nations Economic Council for Europe (UNECE) have produced guidelines to facilitate implementation and compliance with certain multilateral environmental agreements (MEAs).[374]

(ii) Public awareness and participation in the Sudan

Action has been taken in the Sudan to implement the tasks identified to create public awareness and education. The following section explains the detailed action taken, including measures, policies, actions or specific goals established.

The Forests National Corporation of Sudan adopts forestry extension [375] methods to promote local people's participation in forestry activities, disseminate knowledge of improved technology and to provide technical skills to desired target groups. Forestry extension acts as an important vehicle for creating public awareness among the target group to seek their participation. As Bristow[376] puts it, forestry extension methods consist of a varied array of techniques and inputs, with genuine peoples' participation, that can promote environmental improvements to be made through the joint efforts of foresters and the people. Forestry extension programmes in the Sudan promote and inspire local people's involvement in forestry activities to ensure forestry protection and development, and to bring social change in the behaviour of the community.[377] It also helps to ensure rational utilization of renewable natural resources and protection of the environment. It contributes to the expansion of forest resources in the country, and a tool for forest resources conservation and growth. Planning forestry extension is a prerequisite for a successful forestry conservation and development programme.

The Forests National Corporation (FNC) promotes farmer-driven extension and research to ensure that services provided are relevant to farmers' needs. The strategies adopted are: Organization of village committees, forestry associations

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[374] See Mrema, Elizabeth and Bruch, Carl 'UNEP Guidelines and Manual on Compliance with and Enforcement of Multilateral Environmental Agreements,'7th INECE Conference, Proceedings 2005.
Available at: <http://www.inece.org/conference/7/vol1/MremaBruch.pdf> [Accessed: 20th November, 2012]. (Mrema & Bruch 2005).

[375] Extension is described as a non-formal educational process for encouraging peoples' participation.

[376] Bristow, Stephen. *Women's Extension Forestry Manual: A Methodology from Northern Sudan*. London: SOS Sahel International (UK).1996 (Bristow 1996).

[377] Chambers, Robert 1987. Sustainable Rural Livelihood: A Key Strategy for People, Environment and Development. Paper Presented at IIED Conference: Only One Earth, London: IIED (Chambers 1987).

and other bodies; strengthening linkages between farmers, resident forestry extensionists and researchers, and each of these bodies for awareness creating and conflict resolution. Forestry extension agents also involve clients in the planning and evaluation of extension activities. In the Sudan, several forestry extension methods have been designed to generate two-way flows of information. Forestry activities thrive on the effective dissemination of information to farm families and on the availability of support services such as input supply systems, manpower training and development. The mode of forestry extension programmes used in Sudan is based on lectures, workshops, etc. Mass media, including newspapers and journals, radio and television programme, film and records are also employed in the dissemination of the knowledge of improved technology. Major events such as Arbor Day celebrations are held each year, at which seedlings are distributed and informational materials provided, free of charge to participants.[378]

The Government has taken steps to promote genuine participation by major groups, local communities, forest owners and other relevant stakeholders in forestry governance (through developing, assessing and implementing periodic forest-related planning and policy review). For example, the FNC has organized gum producers to form an association known as the Gum Arabic Producers' Associations (GAPAs). The organization has been established through community mobilization. This association is registered under the Laws of the Sudan, Co-operative Societies Act, 2003.[379] Sudan Cooperative Societies Act, § 6(a), 2003:

> "For the purposes of criminal responsibility, property of the Society shall be deemed to be public property and its employees shall be deemed to be public servants."[380]

This association consists of small-scale producers - typically owning a few acacia trees to a maximum of 30 Feddans[381] of a same community. It is estimated that about 1650 associations have been registered so far; with an apex structure located at the Gum Arabic Producers' Union in Khartoum.[382] The primary

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[378] Forests National Corporation. Non-Legally Binding Instrument on all Types of Forests, Sudan, Voluntary Sharing of information on Progress, Forests National Corporation (FNC) Khartoum – Sudan. 2008 (FNC 2008).

[379] The purpose of this Act is to regulate the formation and functioning of Co-operative Societies in the Sudan.

[380] Sudan Cooperative Societies Act, § 6(a), 2003.

[381] 1 Feddan is equivalent to 0.42 ha or 4,200 m^2 or 1.038 acres

[382] FNC 2008.

purpose of forming this association is to empower these farmers through knowledge and skills, in attempts to engage them in group production and to enhance their chances of having access to productive assets (e.g. storage facilities)/financial resources and markets; with the ultimate goal of having producers increasingly involved in selling gum directly to traders or processors. The Gum Arabic Producers' Union - the apex structure in Khartoum - is responsible for protecting the interests of small-scale producers, something that according to some stakeholders had been neglected by the union.

The following paragraphs provide a few examples of participatory forest management in the Sudan.

Examples of organizational models in participatory forest management in the Sudan[383]

Organizational models in participatory forest management in the Elrawashda area

A few examples may be cited of participatory forest management within the Sudan. Two kinds of management systems are located in the natural forest reserves in the Elrawashda area in eastern Sudan. These systems are acknowledged namely Elrawashda Model I and Elrawashda Model II, respectively. There is a particular thing common to both models i.e. the partnership between Forests National Corporation (FNC) and the local people at the fringes of forest reserves, in planting, protecting and deriving befits from forest reserves. The following paragraph discusses these organizational models relative to the Elrawashda area.

[383]Glover 2005: 35 - 37.

(a) Elrawashda model I (example of participatory forestry on government land)

The FAO Fuelwood Development for Energy Project in Sudan (1983-1989) created a project management plan for the Elrawashda forest.[384] The overall subject regarding the plan was designed by formal forestry administration to seek participation of local people in the conservation and management of the reserved forest by contributing to the forestry rehabilitation programme. The formal forestry administration provided the forest land, professional knowledge and organization to social project. Farmers participated in replanting trees in '*taungya agroforestry system'* (i.e. a special arrangement between the government forestry department and local farmers to integrate annual food crops together with trees simultaneously on a piece of land during the early years of plantation establishment). Farmers were also entrusted with the responsibility of protecting the reserved forest against illicit felling, illegal grazing, etc. Farmers that engaged in the practice of taungya agroforestry practice were also eligible to get forest products as determined by the forestry service in those compartments prescribed by the plan.The government forest authority (formal) management system involved management control under the forestry authorities where tree planting on farmlands was done by different methods including local people, but protection was executed by forest guards and officers. Table 4 illustrates the failure of the formal (government) management system.

Table 4 indicates high rates of stocking densities of tree crop during the first year (1988) of establishment. The data reveals that in subsequent years the forestry tree under the protection of forestry authorities failed to survive. The failure in survival rate was due to heavy grazing as a result of ineffective protection exercised by the forestry authorities. The negligent of duty by the foresters resulted in a low stocking density. In some situations, it was observed that the stocking density reduced to as low as zero owing to among others, ineffective enforcement of forest legislation, overgrazing, mismanagement and low inputs to exercise effective protection. It was realized that successful regeneration and development is observed in situations where there was effective protection but limited in area. In this situation, a 32 to 35% stocking density implies very high success in protection of the regeneration area (Table 4).

[384] Vink 1987; FNC 2000; Ibrahim 2000.

Table 4 Survival and stocking densities of the established forestry crop protected by forestry authorities in Elrawashda forest reserve; from inventory data of FNC during 1988-1999 (FNC 1999).

Block area, ha	Inventory in first year (1988) after establishment		Inventory in second year (1989) after establishment		
	Measured stock (trees/ha)	Stocking (% of full stock)	Measured stock (tree/ha)	Stocking (%)	Remarks
185	None	None	None	None	Completely destroyed by grazing
70	1250	50	No survival	None	
27	5200	208	No survival	None	
30	Very dense	Over-stocked	875	35	Effect of grazing
25	Very dense	Over-stocked	804	32	

(b) Elrawashda Model II [Collaborative forest management system (CFMS) on a pilot scale]

Elrawsahda model II, is a collaborative forest management system (CFMS) on a pilot scale in Gedaref in the Sudan. It is described in this study as "provision of public forest land for community forestry." The Elrawashda model II describes a management approach based on collaboration between the government, as landowner and the farming community domiciled in Elrawashda natural forest reserve in designing this system. This CFMS on a pilot scale provides an example of how legal rights of forest users living in and around forests can be assured over the resources. The system provided a successful experiences relating to rehabilitation of bare land of degraded forest ecosystems. It also demonstrates the roles and contributions e.g. income gained by the communities from agriculture and from wood and non-wood forest products sales to forest management and people's livelihoods. The most significant part of the returns is directed to the local area in the form of household income that helps in meeting the daily needs and contingencies.

In Elrawashda model II, selected blocks of badly degraded areas of the Elrawashda forest reserve were allocated as sites for integrated land management involving a rehabilitation, protection, management and a participatory approach. The Elrawashda model II is a community-government partnership that consists of a partnership between Forests National Corporation (FNC) and the local people in planting, protecting and achieving a common objective of deriving

benefits from forest reserves. This approach supports collaboration between the local farmers and the forest authorities for improving forest governance and law enforcement to ensure that local people are capable of regulating legal harvests. It contributes to community rights and access, sustainable management of the forests crop and tree cultivation; the distribution of power affecting land, i.e. the degree of legal control by a participant, use or ownership of land (and tree) resources, and power of decision, i.e. the degree of forest/tree resources management responsibilities,[385] and distribution of benefits between government authorities and local people. This being the case, pre-conditions (e.g. land tenure security) for improved land use management practices have to be addressed.

The model developed by the forestry component of the Agricultural Development Project for the Eastern Sudan (ADES) is similar in structure to model developed by the FAO, with the exception that the local people have nothing to do with the final felling. They are prevented from gathering firewood or other forest products other than those prescribed as rights and privileges in the Forest Act of 1989.

This partnership between FNC and local people has been established in 1994 on the basis of a contract between the two partners granting the farmers security of land tenure for crop (e.g. sorghum, millet and sesame) cultivation inside the reserve.

The government as legal possessor lets or grants to each farmer the use or cultivation of land each year, in a manner that 75% of the land is cultivated with crops and 25% for forest stand establishment. This process continues annually for a period of four years until the whole piece of land is reforested.

Then the forestry project targets another piece of uncultivated agricultural land within the forest reserve. The FNC provides the tree seeds and charged with enforcing forest legislation, coordinating labour resources, supervising the guarding, and patrolling the forest area implemented by the local people and forest guards as a joint activity to check illicit felling etc.

Farmers are willing to accept payments of 10 to 20% of the grain and grain products to the forest authorities. The forest authorities issue licenses to farmers and local bakers, at low royalties, for participating in forest establishment or gathering and selling dead wood and fallen trees under the control of the forest guards. The contract outlines the rights, obligations and responsibilities and obligations of each farmer for cultivation inside the forest reserve. In practice, it means that the government provides farmers with secure property rights and seeds. The contract also contributes to efficient protection and management roles exercised by the farmers and the forest guards.The success of the collaborative

[385] Wiersum 1984

system (i.e.Elrawashda model II) compared to the formal centralized forest management system (i.e. Elrawashda model I) depends on two major criteria: The most important criterion is the efficiency of the collaborative management system established in 1994 in partnership between forest farmers and forest authority. Successful establishment, management, development and protection of well-stocked and efficiency protected forest crop for five age groups is shown in Table 5.

Table 5. Regeneration, survival and stocking densities of forestry crop established and protected by farmers and forestry authorities in Elrawashda forest reserve 1994-1998 (from data collected by Elsiddig 1999).

Block No.	Age (years)	Area (ha)	Full stock (trees/ha)	Survival (trees/ha)	Stock density (%)
A	1	294.0	2,977	2,721	91.4
B	2	436.8	2,977	2,550	85.7
C	3	403.2	2,977	2,440	82.0
D	4	294.0	2,977	2,381	80.0
E	5	272.0	2,977	2,269	76.2

The percentage stock of the established forest crop over one year old indicates stocking density as high as 76 % to 91 % for a five-year-old stand. High stocking densities are maintained over age, and the decrease in stock over time from 91 % to 76 % may be due to normal mortality after natural selection but not to grazing or mismanagement. Tables 5 shows that high stocking densities maintained over time owing to efficient protection offered by local people's participation coupled with adequate enforcement of the sound legislation and policies among the collaborative reserve farmers enhanced the forest stands. The most important aspects that concern the management system adopted in Elrawashda forest reserve and other reserves are contained in the success of rehabilitation. Table 4 demonstrates a failure of the protection and management system based on the FNC forest guards alone without involvement of local people. While Table 4 indicates low stocking density (or high rates of losses in stocking densities) of forest regeneration in the second year due to grazing and inefficient protection, Table 5 shows high stocking densities maintained over time due to efficient protection and management of forest provided through involvement of local people.

Table 6 displays the various arrangements through which participatory forest management has been fostered in the Sudan.

Some examples of organizational models in participatory forest management in the Sudan.[386]

Table 6. Examples of organizational models in participatory forest management in the Sudan (modified from Glover 2005:33-34).

Type of organizational model	Example in the Sudan	Brief description
Partnership model (Provision of public forest land for community forestry) Local community provides labour Formal forestry administration provides land, professional knowledge, capital to the project joint organization Contract between FNC and Local community	Gedaref model	Farmers are allowed to grow their arable crops within the forest reserves according to special contract approved by the forestry service and they pay rental cost, which are used by the forestry service for rehabilitation of forest reserves. This is continued for a period of 4 years, then another piece of bare land within the forest reserve is targeted (Ibrahim 2000).
Support service model (Forest service as extension agent) Formal forestry administration offers professional knowledge to local communityLocal community provides	Ed Debba community forestry project (Northern State)	Survival with moving sands: The project area comprises a narrow band of flat land along the Nile river with villages on both sides and the desert area immediately around it. The project objectives were designed to enable local people to grow shelterbelts, windbreaks and stabilize mobile dunes, to protect farmland and homes from burial by sand; to demonstrate to the communities in and around the project

[386] Modified from Glover 2005:33-34.

land, labour, capital, organizations, local knowledge to project		area that they can help themselves to protect their environment and enhance the quality of life. The community is involved in most of the stages of fund-raising, project identification, planning, design, implementation, monitoring and evaluation (FNC 2000; Ibrahim 2000).
Social forestry on state forest land (e.g. taungya cultivation) Formal forestry administrationprovides forest land, capital and social amenities, professional knowledge and organization to social forestry project.	Um Sunta model (White Nile)	A proposed model designed to serve as a case where the best sustainable forest management practices are developed, tested and shared across the country. The different partners are local inhabitants (engaged in arable crop production and village-based livestock raising), pastoralists (camel transhumans of the North Kordofan and commercial livestock crossing the area), local government administration (represented by FNC), native administration, universities, environmentalists and NGOs (Plan Sudan). FNC has jurisdiction over the land. The entire responsibility for the management and utilization of the resources lies in the hands of the settlers. The FNC provides the necessary technical and legal measures pertinent to the sustainable management of the forest. The management objectives are to protect and maintain environmental stability, provide open grazing area for livestock and provide local people with their basic needs for forest/tree products (fodder, fruits, firewood, building materials etc.)

Social forestry on state forest land (e.g. taungya cultivation) Formal forestry administration provides forest land, capital, social amenities, professional knowledge and organizational services to social forestry project.	Um Sunta model (White Nile)	The forest occupies an area of 5,000 hectares. It is divided into management blocks equal to the number of villages. The forest is divided into two working circles: the Protection Working Circle (PWC) where the main objective is to maintain a good ground cover pertinent to containing erosion and the Fodder Working Circle (FWC) where the management objectives is to provide grazing and dry season fodder, the PWC comprises all areas subject to water and/or wind erosion and sand dune encroachment, the FWC comprises all open rainfed areas. Efforts made by local communities in afforestation activities have resulted in increased plantations as well as seedling production by several folds (FNC 2000; Ibrahim 2000).
Social forestry on state forest land (e.g. taungya cultivation) Formal forestry administration provides forest land, capital, social amenities, professional knowledge and organizational services to social forestry project.	Sunt riverain model (Blue Nile region of the Sudan)	The first tracts of forests to be put under management plans were the riverain *A. nilotica* forests along the Blue Nile, Dinder and Rahad rivers. The tract is divided into two circles viz: (1) The sawn timber working circle and (2) The firewood working circle. The sawn timber working circle includes all forests south of Sennar dam (i.e. between Damazin and Sennar with an area of 9,000 ha). A rotation of 30 years for the production of saw logs for railway sleepers was followed (Abdelnour 1999). (2) The firewood working circle: for forests between Sennar and Kharthoum with an area of 5,540 ha (Abdelnour 1999). The management plan for the firewood working circle is mainly for the firewood production and round poles for building. Local people depend on the forest for tanning materials and also for crop

		cultivation at establishment phase. The duration of this Sunt rotation is 20 years to fulfill the maximum production of firewood (Abdelnour 1999; FNC 2000; Ibrahim 2000). Besides the production of sawn timber, building poles and firewood, these forests also provide fish, browse material and perhaps more importantly, the protection of river banks, installations on rivers e.g. dams and bridges, and amelioration of climate for river bank agriculture and human settlements (Abdelnour 1999).
Social forestry on state forest land (e.g. taungya cultivation) Formal forestry administration provides forest land, capital, social amenities, professional knowledge and organizational services to social forestry project.	Irrigated eucalyptus model	*Eucalyptus microtheca* is the main plantation species under irrigation. Seedlings are planted at a spacing of 2x2 m. The rotation for removal of the first crop is 4-8 years, depending on the site and end-uses. The clear-felling system is adopted for the first crop followed by selective felling for the coppice regeneration. The coppicing continues till the age 25-30 years when the stumps should be removed by uprooting (FNC 2000; Ibrahim 2000).
Support service model (Forest service as extension agent) Formal forestry administration offers professional knowledge to local community	Gum cultivation cycle model (Kordofan region)	One of the best examples of gum production is in the Kordofan region of the Sudan, where *Acacia senegal* (Hashab) has historically been cultivated. The hashab bush fallow system of land management is based on rotation cycle which consists of about 4 -5 years of cropping (of pearl millet, groundnut, sesame or peas) followed by a period of 15 to 20 years of hashab cultivation during the fallow period (ADB/EC/FAO 2003). Animals graze in these fallows making

Local community provides land, labour, capital, organizational services and local knowledge to project	use of the grass and the pods of the gum trees and add to the soil fertility by their droppings (Ibrahim 2000). At the beginning of the agricultural rotation, when the gum trees are 15 to 20 years old and gum production has decreased, the farmers cut back all the gum trees to 1.5m. The ground is cleared and fire is sometimes used to destroy the woody vegetation to facilitate cultivation. At the end of the agricultural cycle, gum trees are re-established either through natural regeneration or seeding. After a few years, the farmers can start to collect the gum. This system relies on the fact that each farmer owns the trees and the land (ADB/EC/FAO 2003).

3.1.2.5 Conservation areas in the Sudan

Since the United Nations Conference on the Environment in Stockholm in 1972 the environment has emerged as a global issue, and the social and economic implications of resource use, environment, and development has become a major concern for many governments. National and global strategies have been widely discussed and formulated ever since 1972, as evidenced in the two landmark reports: The World Conservation Strategy (IUCN 1980) and 'Our Common Future' (1987)[387].

In recognition of the significance of conserving the Sudan's rich and unique biodiversity, the Sudan signed and ratified the Convention on Biological Diversity (CBD) on 12th June, 1992[388] and 30th October, 1995 respectively.[389] Early events in the United Nations process that led to the development of the Convention on Biological Diversity (CBD) include: [390] The declaration of the United Nations Conference on the Human Environment, 1972 (Stockholm Declaration 1972); United Nations Working Group on Indigenous Populations, 1982; The World Charter for Nature, 1982 and Report of the World Commission on Environment and Development, 1987 – 'Our Common Future.'

According to its objective,[391] the CBD's aim is to promote at least one of its stated objectives, namely: the conservation of biological diversity; the sustainable use of its components[392] or the fair and equitable sharing of the benefits of the utilization of genetic resources. The term "sustainable use" plays

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[387] Report of the World Commission on Environment and Development: Our Common Future, 4 August 1987 (A/42/427, Annex). (WCED 1987).

[388] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 142. (CBD 1992).

[389] Ministry of Environment, Natural Resources and Physical Development (MENRPD). National Biodiversity Strategy and Action Plan 2015 -2020. Ministry of Environment, Natural Resources and Physical Development, Higher Council for Environment and Natural Resources, Government of Republic of Sudan 2015:1. (MENRP 2015). *See also*: Elsiddig, ElNour A., Mohammed, Abdalla Gafaar and Abdel Magid, Talaat D. Sudan Forestry Review. Forests National Corporation, National Forest Programme Facility, Sudan. 2007. (Elsiddig et al. 2007).

[390] United Nations. A brief history of the Convention on Biological Diversity. Available at:
http://www.ubcic.bc.ca/files/PDF/CBD_History.pdf. [Accessed: 5th April, 2007]. (United Nations 2007).

[391] *See* CBD 1992.

[392] The components are: ecosystems, species or genetic resources.

a significant role in the CBD and can be found in the second objective of the Convention:

> "'Sustainable use' means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations."[393]

The Rio Declaration on Environment and Development, in the Report of the United Nations Conference on Environment and Development, UN Doc. A/CONF.151/26 (Vol. I), 12 August 1992, Annex I: (Rio Declaration 1992), reaffirms and builds upon the principles of the Stockholm Declaration on the Human Environment, in Report of the United Nations Conference on the Human Environment, UN Dec./CONF.48/14, at 2 and Corr.1 (1972) (Stockholm Declaration 1972) as acknowledged in Principle 2 of Rio Declaration 1992:

The CBD became the main international instrument that provides the Sudan with a general framework for the conservation and sustainable use of components of biological diversity, thus maintaining its ability to meet the needs and aspirations of present and future generations, and the fair and equitable sharing of the benefits that arise from the utilization of genetic resources.[394]

In May 2000, Sudan completed its National Biodiversity Strategy and Action Plan (NBSAP), which was supported by the Global Environmental Facility (GEF) in its preparation. The formulation of NBSAP was based on extensive consultation and participatory processes. The vision guiding the NBSAP effort strives for conservation of diversity, and related indigenous knowledge relevant for the sustainable national development of the Sudan.[395]

The general aim of the NBSAP is to conserve and enhance biological diversity and develop the sustainability of the Sudan's long-term prosperity and development. Specifically, the aim of NBSAP is to conserve biodiversity; promote sustainable use of biodiversity products; promote awareness on biodiversity conservation; create an enabling environment for biodiversity conservation and comply with and benefit from regional and international agreements and mechanisms.[396] NBSAP proposes that the conservation of biodiversity is carried out in two ways,[397] namely: in situ and ex situ

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[393] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 142. Article 2.

[394] MENRP 2015:2. *See also*: Elsiddig et al. 2007

[395] MENRP 2015:3. *See also:* Elsiddig et al. 2007

[396] ibid.

[397] These two distinct approaches help in maintaining a species or a population sample of a specific part of its genetic variation. In situ (on-site) conservation describes the

conservation. It also proposes further actions to be taken as regards utilization; documentation; education, training and increasing awareness; and comprehensive policy, legal and institutional arrangements.

The Sudan is among the countries that signed the Revised African Convention on the Conservation of Nature and Natural Resources (Maputo Convention 2003),[398] It was adopted in Maputo, Mozambique on 11th July, 2003. The Sudan became a signatory to this Convention on 30th June, 2008. This being the case, the Convention has not yet come into force. Article X11 (1) of the newly revised African Convention on the Conservation of Nature and Natural Resources, 2003 calls for the:

> "Parties to establish, maintain and extend, as appropriate conservation areas"[399]

Such areas are to be designated, if possible, in attempts to:

> "the long-term conservation of biological diversity."[400]

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conservation and maintenance of samples of genetic resources in their natural habitat or populations of plant or animal species. Examples can be cited of forest genetic resources found in natural habitats of tree species. Ex situ (off-site) conservation describes the conservation and maintenance of samples of genetic resources outside their natural habitat. The ex situ conservation approach may involve the maintenance and protection of entire plants, pollen grains, seeds, vegetative propagules, tissue or cell cultures (Heywood, Vernon.H. and Dulloo, Mohammad E. In Situ Conservation of Wild Plant Species: A Critical Global Review of Good Practices. The International Plant Genetic Resources Institute (IPGRI). IPGRI Technical Bullen No. 11, 2005 (Heywood & Dulloo 2005); (Dulloo, Mohammad E. and Bor Elli, Teresa. Ex Situ and In Situ Conservation of Agricultural Biodiversity: Major Advances and Research Neeeds. *Not. Bot. Hort. Agrobot. Cluj,* 2010, 38(2):123-135) (Dullo & Bor Elli 2010).

The selection of one or the other technique, or a combination of both, is determined by the nature of the event. In situ conservation approach involves the maintenance and protection of natural habitats. Ex situ conservation involves the use of botanical gardens and seed banks. This requires a selection of the most appropriate areas, called the hot spots (Braun, Richard and Ammann, Klaus. Biodiversity: The impact of biotechnology. Encyclopedia of life support systems. Oxford: EOLSS Publishers. 2002: 7). (Braun & Ammann 2002)).

[398] The revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395).

[399] The Revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395), Article XII(1).

[400] The Revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395), Article XII(1).

Article XII (3) of the revised African Convention on the Conservation of Nature and Natural Resources 2003[401] compels Parties to promote local communities' involvement in the creation and management of conservation areas for the conservation and sustainable use of natural resources. This provision of Article XII(3) complements Article XVII (3) which compels the Parties to allow local communities' involvement in the process of planning and management of natural resources, which form sources of livelihoods. Such approach may create local incentives for the conservation and sustainable use of such resources.

This provision of Article XII (3)[402] complements Article XVII (3)[403] which compels the Parties to engage local communities' active involvement in local decision-making processes especially in the process of participatory planning and management of natural resources; which form their sources of livelihoods. Employing an active participatory approach to decision-making may empower the communities and create local incentives for the conservation and sustainable use of such resources.

In the Sudan, conservation[404] Orders are administrative decisions of protecting special protection and conservation areas from damage. These orders are effected through prohibition or restriction of certain development activities or uses on particular tracts of land with the sole aim of conservation. They are therefore considered to be measures imposed by that regulation in the exercise of the State's police power, which may generally be accepted with regard to both public and private land. [405]

Areas protected by conservation orders and reserves differ from each other in that there is no official reserve designation in terms of areas protected by conservation; and that exclusion and restrictions are carried out on a case-by-case basis and in relation to the specific requirements of the area or feature concerned.[406]

Conservation orders may target preservation of any area. In some instances, it may also contain provisions that aim to protect critical habitat of an endangered

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[401] The Revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395), Article XII(3)..

[402] The Revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395), Article XII(3).

[403] The Revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395), Article XV11(3).

[405] De Klemm, Cyrille and Shine, Clare. *Biological Diversity Conservation and the Law: Legal Mechanisms for Conserving Species and Ecosystems* (IUCN 1993),p. 201. (De Klemm & Shine 1993).

[406] De Klemm & Shine 1993: 202.

species, or a species that have been proposed to be listed as threatened or endangered requires preservation.[407] Conservation orders may also apply to certain specific landscape features that warrant preservation[408] with the ultimate goal of preserving the ecological system.

Recorded reserved forests in the Sudan are classified into categories. Article 5(2)(a) of the Forests Act 1989, classifies reserved forest areas into three main groups, namely national, regional and other forest. The procedure for reservation of an area Forest lands as "reserved" is spelled out in the Forests Act, 1989. The FNC may obtain any such rights as necessary in attempts to create and manage reserved areas (see Articles 5 and 6 of the Forests Act 1989): Article 5(1) of the Forests Act 1989 stipulates that:

> "The Corporation shall, when informed by the decision of the Minister to reserve any Area in any land under the disposal of the government, take the procedure of acquiring any such rights according to Land Acquisition Act 1930; provided that the rights, which the Corporation in consultation with the Board do not want to acquire the same, shall be exempted from such acquisition for the reason that using the same rights do not harm the area proposed to be reserved …"[409]

Law and legal mechanisms play a significant role in accomplishing these goals: international obligations suggest common commitments and measures to attain them; national legislation is in place to provide enabling constitutional, legislative and institutional framework to regulate certain behaviour, to fine-tune incentives to achieve a very specific result, and to put appropriate legal and institutional structures in place.[410]

In the Sudan, forests protected by conservation orders are designated specifically for conservation purposes. In the Sudan again, the Minister of Agriculture and Natural Resources may make a range of orders for the "*General Protection of Forests and Produce Outside the limits of the Reserved Areas Protection of Trees for Special Purpose*."[411]

According to FAO,[412] the Sudan had recognized the importance of regulating and controlling the use of the forest resources since the beginning of the 20th century. The Forests and Woodlands Service was set up by the government, in 1902. In 1908, the government issued regulatory acts and 1917 supportive to the

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[407] ibid.: 202.

[408] ibid.: 203.

[409] The Forests Act 1989 Article 5(1) of the Forests Act 1989

[410] ibid.: xvi.

[411] The Forests Act 1989, Chapter III.

[412] FAO. Sudan National Forestry Policy Statement, TCP/SUD/2903 (A) 2006.

adopted policies of conservational nature. Sudan's first formal national forest policy and allocation of responsibilities between national and provincial governments was endorsed in 1932. The 1932 Forest Policy was amended in 1986 by a new and more effective National Forest Policy that contained new concepts regarding involvement of local communities in forestry activities.

The vital role of forests in the national economy and in ecology was further underscored in the Forests Act of 1989, which concentrated on ensuring environmental stability, restoring the ecological equilibrium, and preserving the remaining forests. As explained earlier, another objective of the policy was the need to involve local people in the management of forest resources. The Forests Act of 1989 was endorsed to facilitate stricter protection measures as stipulated in the Forests Act 1989 (17):

> "The Minister, whenever he deems it necessary for the protection of any particular species of trees or confining tree felling to reserved Areas only or within areas 'where regeneration is assured for the protection of soil, water resources and pasture and any other natural resources within a particular area; or for the protection of highways, bridges, river banks and any other lines of communication, may issue orders to be published locally with provisions which prohibits or regulates any of the following things: [413]
>
> (a) "The cutting of trees in general particular species of tree or of any that species of tree; or of any age-class of that species of tree;[414]
> (b) The kindling of fires in or near reserved forest areas;
> (c) Producing, collecting and removal of forest produce."

In view of the foregoing considerations, a number of orders have been issued, pursuant to the Forests Act 1989, 17. Para (a)(b) and (c).:[415]

- "The Regulatory Rules for the Protection of Dom Palm in Northern and Eastern States 1992;
- The Regulatory Rules for the Protection of *Salvadora Persica* (Arak) 1992,
- The Regulatory Rules for the Protection of *Borassus item* (Dalieb) in Kordofan State, 1994 and
- The Regulatory Rules for the Protection of Dom Palm 1994." [416]

[413] The Forests Act 1989, 17.
[414] ibid. Para. (a).
[415] The Forests Act 1989, 17.Para (a)(b) and (c).
[416] ibid.

Among the national goals and priorities for the policy of the forestry sector of the Sudan is to conserve biodiversity.[417] The Government's aim is to maintain the ecological characteristics of protected areas, forest reserve and wooded areas and trees outside forests or woodlands, maintaining and enhancing the health and vitality of forest ecosystems and ensuring ecologically intact and relatively free pristine (undisturbed) natural evolution of those areas. There are restrictions on felling and trade of particular species of trees, namely: Dom Palm, *Savadora persica* and *Borassus aethiopum*. The Regulatory Rules for the Protection of Dom Palm of 1994 is promulgated to be employed in all the states and to delineate the tree of Dom Palm to include its leaves. In attempts to prohibit indiscriminate tree cutting activities in some local communities, the Minister issues Executive Order that relates to 'The Prohibition of Felling Trees Growing in Public Buildings, Public Squares and Along Side Roads Order, 1992 and the Regulatory Rules for the Protection of some Trees in Agricultural Investment areas, 1992. The latter, regulatory rules, aim at prohibition and restriction of kindling on certain species of trees, such as Higlieg, Tartar, Gafal. Dom palm, Babanus and Hasha found growing in the agricultural investment areas. These species are placed under protection, over the long term, if its density exceeds 50% of the density of the area. In all respects, to conform to these orders or regulations, the authority to grant permits is reserved to the governing body i.e. the General Manager of the Forests National Corporation.

Subject to the provisions of the Order and Regulations, the General Manager shall have the following powers and duties and shall perform the following functions: He may assign and/or delegate thereon to such powers for administrative or scientific research purposes, on such terms and conditions as he may deem fit:

For the protection of riverbanks, water and soil resources, water quality and aquatic ecosystems, regulatory intervention should be considered by authorities to regulate activities that may negatively affect wetlands and other marginal areas. The Presidential Decree of 1992,[418] that stated the prohibition of farmland for residual purposes, is of little importance to forestry if agricultural land is understood to exclude forest land. This is the case; the Presidential Decree is inadequate and is unlikely to address issues related to the conservation of

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[417] FAO. Sudan National Forestry Policy Statement, TCP/SUD/2903 (A) 2006,

[418] On the file No. Forests, 1/A/1 at Forests National Corporation. This was issued by the Chairman of the Revolutionary Command Council for Salvation on 5 September 1993, as a result of a meeting convened on 1 September, 1993 with the Minister of Agriculture and Natural Resources and the Council Manager of the Forests National Corporation.

forests. It is unable to propose a set of rules that would put strict restrictions on the use of forest land for non-forest uses, such as agricultural land use, industrialization and urbanization. It also fails in the restriction of abolition of reserved forests.

The preservation of species diversity as part of global biodiversity is considered to be a major purpose of the forest. Besides providing intrinsic value, the role of preservation of species diversity in forest ecosystem function has significantly increased the capability of the ecosystem to support services of value to society. Protected areas in the Sudan, as elsewhere, are vital for biodiversity conservation, often providing habitat and protection from hunting for species which are threatened and endangered. Protection helps in maintaining ecological functions of ecosystems. Biodiversity conservation has the main goal of achieving long-term protection of forest areas of high ecological value, thus promoting forest reserves.

However, protecting vast areas of land will result in major social, economic and political problems. The question has been posed: How can forests intended to be under protection from human encroachment and the impacts of land development be kept entirely free of the hungry masses in quest for potential agricultural land?[419] A viable strategy may be to find a sustainable livelihood for rural populations in connection with conserving tropical forests.[420] Policing alone will be generally unsuccessful over huge tracts of territory, as understood today in forest management in parts of sub-Saharan Africa. Conservation, as seen today, also includes different components of agro-biodiversity e.g. crop varieties, land races, semi-domesticates and crop relatives.[421]

Although some progress has been made in the Sudan for conservation and sustainable use of some components of biodiversity, the implementation of the NBSAP (2000) has not been as effective and satisfactory as should be. Albeit some progress has been made in the Sudan for conservation and sustainable use of some components of biodiversity, the implementation of the NBSAP (2000) has not been as successful as ought to be. It has been blocked by various factors and existing conditions comprising the weak systems for human resources development and infrastructure that due to a number of reasons on top of which was the lack of relevant policies and legislation.[422]

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[419] Mace, Georgina M., Balmford, Andrew, Ginsberg, Joshua R. (eds.). *Conservation in a Changing World,* Cambridge University Press, UK. 2000 (Mace et al. 2000).

[420] Jennings Steve., Brown Nick D., Whitemore, Tim, Silva J.N.M., Lopez J. do C.A. and Baima A.M. V. To conserve rainforest, we have to help local people live sustainably. Nature. 2000, 405 (6786):507-507 (Jennings et al. 2000).

[421] Braun & Ammann 2002:7.

[422] MENRP 2015:3.

3.1.2.6 Forest management plan

In the Sudan, the Forests National Corporation Act 1989 (Forest Act 1989) has been the most significant enactment sanctioned on the management, conservation and protection of forests. It focuses on improved management and protection of woodland resources. It laid emphasis on strengthening institutional structure and concurrently. The principal objectives of the Forests National Corporation Act 1989 focused on rational exploitation of the forest domain and its improvement as well as the service and ecological roles of forests to protect the environment.[423] It also guarantees that 20% of the national territory will be reserved as land,[424] and recognises the involvement of the populace in tree plantation.[425]

The Forests Act 1989 secures customary non-acquired usage rights[426] and ownership, in this way conceptualizing the philosophy of community forestry. To utilize the existing forest resource well, the Forests Act 1989 made the use of tree stocks on land assigned for agricultural investment and not to be burnt in situ, compulsory.[427]

The 'Multiple use of forest land,' is a concept that was described in the Forest Act 1989, which provides adequate consideration for uses of the reserves or area in the process of reservation to values concerning recreation, pasture and cultivation, provided they are compatible with the principal function of production and protection. Therefore, forestry legislation moves away from the domain of felling control and turns out to be increasingly oriented towards the integrated management of the forest land.

One of the significant institutional requirements for sustainable forest management is to encourage creation of suitable and reliable forms of land tenure. Unlike practices in the past, the Forests Act 1989 recognized new forms of forest ownership, including national forest reserve, state forest reserve, private forest reserve and other forest reserves. Other forest reserves include individually-owned forest, communally-owned forest and the forests of institutions.[428]

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[423] Laws of the Sudan. 291 (6th ed. 1993) at S.4 (1)(a).

[424] ibid. S.4(1)(g).

[425] ibid. S.4(1)(h)

[426] ibid. Laws of the Sudan.104 (6th ed. 1992), SS.5(1), 6(1).

[427] ibid.s.20(2).

[428] Laws of the Sudan. 291 (6th ed. 1993) at S. 11(1).

Rational management necessitates that the allowable taking level for a given species ought to be changed in accordance with the capacity of the exploited population at any given time.[429] Therefore, good forestry management comprises of constraining the cutting of timber to that which can be removed annually in perpetuity. "*The yield that a forest can produce continuously at a given intensity of management, without impairment of the productivity of the land is a sustained yield.*"[430] Thus, the Forest Act 1989 management indicates continuous production, so it planned to realise a balance between increment and cutting at the earliest possible time,[431] and to maintain continuous tree cover.

For this to be feasible, research coupled with valid and reliable information is needed to determine the limit of an ideal maximum optimum sustainable yield is required. This concept is not explicitly typified in the Forests Act 1989, however it is implicit in the creation of forest reserves,[432] the management of which encompasses fire prevention,[433] controlled cutting of trees for commercial purposes,[434] reforestation, and afforestation after harvesting,[435] and in the realisation of an approximately normal distribution of forest productivity among age classes in attempts to have trees reaching maturity or merchantable size. The institutional basis for sustained yield management is the Forest Policy Statement of 1986[436] which explicitly recognised the concept. An innovative provision of the Forests Act 1989 requires approval from Forests National Corporation when encroached land is allocated to any project for any purpose as regards the effects of the removal of trees on the natural[437] environment.

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[429] Stepanova, Yu N., I. S. Zinovyeva, T. L. Bezrukova, and I. V. Kuksova. "Rational use of forest as a renewable natural resource." *European Research Studies Journal,* 2018:444.

[430] The International Union of Forest Research Organizations (IUFRO). Terminology of forest management. Terms and definitions in English. Vienna: IUFR World Series. 2010 cited in: Hermansson, Martin, Frederik Doyon, Per Angelstam, Marine Elbakidze, Kjell Andersson, Jonas Jacobsson, Glen W. Armstrong, Robert Axelsson, and Yurij Pautov. "Sustained Yield Forestry in Sweden and Russia: How Does it Correspond to Sustainable Forest Management Policy?" *AMBIO A Journal of the Human Environment*, 2013:160 (Hermansson et al. 2013).

[431] Hermansson et al. 2013:160.

[432] Forests Act 1989, S.5.

[433] ibid.S.13(C)), 15(1)(a)

[434] Ibid. S.18(1).

[435] ibid. S.20(3).

[436] Art. 5(a)(11) is still one of the objectives of the Statement which is the "Protection, conservation and management of the national forest in which the application of proper management of planting is pursued so that yield is regular and sustained

[437] The Forests Act, S.20(1).

3.1.2.7 Financial incentives in the Sudan

One of the most important challenges in conservation is to make sure that people in local communities are provided with enough economic incentives in tangible and non-tangible forms so as to motivate them to participate in sustainable forest management.[438] Approaches based on incentives are expected to reduce forest decline and increase sustainable livelihoods and environmental services. Incentives can be made by providing people with grants and involving them in the greening of the barren and degraded forest lands through forest rehabilitation, afforestation and reforestation.[439] Examples of incentives in the Sudan include provision of land and tax exemptions for forest products in addition to tax incentives to enhance development of strategic emerging industries and projects, lowering barriers to foreign direct investment (opening up investment to foreign competition), and consolidation through capital requirement at the minimum.[440]

Financial incentives or disincentives may play important roles in conservation. Article 6 of the investment Encouragement Act 1999, Amended (2007) state in clear terms:

> "targets encouragement of investment into such projects, as may achieve the objects of the development policy, and the investment initiatives, on the part of the Sudanese and non-Sudanese private sector, the cooperatives, mixed and public sector. Without prejudice to the generality of the foregoing, it aims at the encouragement of investment into the projects of any of the fields set out in section 7."[441]

Article 7 of the investment Encouragement Act 1999, Amended (2007) spells out the fields of investment: "This Act encourages investment, into the fields of agricultural, animal and industrial activities, energy and mining, transport, communication, tourism and environment, storage, housing, contracting, infrastructure, economic, administrative and consultative services, information

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[438] Gafaar, Abdalla. Forest Plantations and Woodlots in Sudan. *African Forest Forum Working Paper Series*, 1(15), 2011: 52. (Gafaar 2011).

[439] Knuth, Lidija. Legal and institutional aspects of urban, peri-urban forestry and greening: A working paper for discussion. FAO, 2005: 17 (Knuth 2005).

[440] Gafaar 2011:52.

[441] Article 6 of the investment Encouragement Act 1999, Amended (2007)

technology, education, health, water and culture and information services and any such other field, as the Council of Ministers may specify."

In relation to exemptions from other taxes and fees, Article 12(a) of the investment Encouragement Act 1999, Amended (2007) in clear terms provides that:

> "the Minister may grant such strategic and non-strategic projects, as may be specified in the regulations: -
> The necessary land for the strategic project free of charge, and at the encouragement price for the non-strategic project, in co-ordination with the bodies concerned, from such lands, as may have been planned by the competent bodies."[442]

The foregoing inter alia, allows specifically for strategic and non-strategic industries to enjoy exemption from the business profits tax, the effect of which commences from the date of commercial production, or practice of activity.

A considerable number of initiatives have been undertaken to involve not only the government, but also other stakeholders such as civil society organizations, private sector organizations, Non-Governmental Organizations (NGOs) and women's organizations in forestry in matters. The genuine interest in growing trees may be influenced by deeply rooted cultural values and a tradition of caring for trees in home garden systems and agricultural systems, particularly in the gum belt.[443] In a study by Gafaar,[444] several examples of the government's efforts in facilitating this and instances of participation of civil society in forestry have been cited, and these include the following (a – c):

a) "Provision of seeds/seedlings free of charge to farmers by Forests National Corporation;
b) Provision of extension packages, soft or non-interest loans, and sometimes food support through such schemes as food for work for community woodlots and individual gum orchard stocking through donor assisted projects like those for gum belt rehabilitation and Fuelwood for Energy; and,
c) Agricultural credits include loans provided to mechanized rain-fed farmers[445] in the clay plains of Eastern and Central Sudan, in cash and in

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[442] Article 12(a) of the investment Encouragement Act 1999, Amended (2007).
[443] Gafaar 2011:43.
[444] ibid.: 43.
[445] Mechanized rain-fed farming or Mechanized scheme farming describes modern rainfed agriculture using tractors, disc harrows and mechanized harvesters. These farming schemes dominate the southern part of the Gedaref state in the Sudan. Mechanized scheme farming is done on private schemes and government or state farms.

> kind for seed. The annual celebration of arbour day in the capital city and states, encourage farmers and homesteaders to plant seedlings issued by the government. "[446]

A higher rate of royalty is collected on forest produce from outside the forest reserves[447] (wood, charcoal or non-wood products from areas destined for agriculture, construction or not constituted as forest reserves). The rationale behind the higher royalty rates is to encourage the concentration of cutting inside the reserves where control is possible, and regeneration is assured. This royalty is levied in accordance with the Royalty Ordinance of 1939,[448] calculated periodically and granted final approval by the Minister of Finance. This order has been in place since 1939 for collection and payment of royalty fees for forest products produced from forest areas outside the forest reserves. This Order has been put in place as an attempt to prevent people from participating in processes which could result in environmental changes such as cutting trees outside these reserves. In 1989, a new law was enacted by the FNC, which legalized involvement of people as an essential condition in forestry that enhances forest management. It also made provision for private, community and departmental forests.[449]

Due to contrasting views concerning types of property rights between the state and local people groups. Retracing legal developments in the Sudan has indicated the extent to which local people were dispossessed from ancestral lands and the suffering they endured. The legal system imposed by a colonial power (i.e. the received law) is partially reflected in the Constitution of the Sudan[450] and as far as law does not comply with people's needs, they do not consider it as binding. When a legal system imposed by a colonial power and

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In the Sudan, those farmers working with state planned or traditional farms, practise agriculture on 420 ha -12,600 ha lots of land inside and outside natural forests and forest reserves using tractors. Mechanized scheme farms that are established on government land are not registered in the name of the government based on the law declared in 1970 that all unregistered land is government land. Land-use of this type is thus on leasehold (Glover 2005: 49).

[446] Gafaar 2011:43.

[447] The Royalties Order 1939, S.4(1)(d).

[448] The Royalties Order 1939, S.4(1)(d).

[449] Forestry policies, institutions and programmes: Sudan, Food and Agriculture Organization of the United Nations. Available at: http://www.fao.org/forestry/country/57479/en/sdn/ Accessed on: 18 February 2014.

[450] Government of the Sudan. The Interim National Constitution of the Republic of the Sudan, Government of the Sudan. 2005, Chapter II, paragraph 11(3). (Government of the Sudan 2005).

legal evolution is external rather than internal, legal institutions are more likely to become much weaker.

3.1.2.8 International initiatives and ageements on the management and conservation of forests in the Sudan

(i) Introduction

The importance and role of international environmental law in shaping enforcement cannot be over-emphasised. The Sudan as a country responded to environmental problems by ratifying a vast array of international environmental laws. These laws seek to provide vision, scope and authority for environmental protection. Since the 1970s, there has been significant evolution in environmental legislation in African countries including the Sudan. While the Stockholm Conference provided the initial impetus for the reappraisal of legal and institutional arrangements, it is the activities of UNEP and IUCN from the beginning of the 1980s (and more recently the World Bank and UNDP) which have maintained the impetus for legal change.[451] With reference to the work of Ogolla,[452] four directions of change in legal and institutional arrangements can be identified:

First, there has been an attempt to expressly integrate environmental policy in constitutional form. Secondly, there has been a move towards the centralization of environmental management in core institutions. Thirdly, attempts have been made to establish a system-oriented and integrated framework for environmental management. Lastly, legal and institutional mechanisms have been established for the integration of environment and development in decision-making and in socio-economic planning.[453]

Since the United Nations Conference on the Environment in Stockholm in 1972 the environment has emerged as a global issue, and the social and economic implications of resource use, environment, and development has become a major concern for many governments. National and global strategies have been widely

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[451]Ogolla, Bondi D. "Environmental law in Africa: Status and Trends." *International Business Lawyer*. No. 412. 1995.

[452] ibid.

[453] ibid.

discussed and formulated ever since 1972, as evidenced in the two landmark reports, the World Conservation Strategy (IUCN 1980) and 'Our Common Future.' [454] According to the *World Conservation Strategy*, a study on conservation published by the International Union for Conservation of Nature and Natural Resources (IUCN) in cooperation with the United Nations Educational, Scientific and Cultural Organization (UNESCO) and with the support of the United Nations Environment Programme (UNEP) and the World Wide Fund for Nature (WWF)[455]:

> "A commons is a tract of land or water owned or used jointly by the members of a community. The global commons includes those parts of the Earth's surface beyond national jurisdictions — notably the open ocean and the living resources found there — or held in common — notably the atmosphere.[456]

The African Convention on the Conservation of Nature and Natural Resources by the Organisation of African Unity (OAU, now the African Union) on 15 September 1968 at Algiers, Algeria, was known as the first regional attempt in Africa to deal with environmental issues.[457] Revised African Convention on the Conservation of Nature and Natural Resources (Maputo Convention 2003).[458] is an update of the African Convention on the Conservation of Nature and Natural Resources 1968. [459] Revised African Convention on the Conservation of Nature and Natural Resources 2003 is not yet in force. This Convention will replace the 1968 African Convention on the Conservation of Nature and Natural Resources, when it enters into force; for

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[454] WCED 1987.

[455] The World Wide Fund (WWF) for Nature was formerly named the World Wildlife Fund, which remains its official name in Canada and USA.

[456] IUCN/UNEP/WWF. The Global Commons. World Conservation Strategy, International Union for Conservation of Nature and Natural Resources, 1980. Chapter 18. (IUCN/UNEP/WWF 1980).

[457] African Convention on the Conservation of Nature and Natural Resources (adopted 15 September 1968, entered into force 16 June 1969) 1001 UNTS 3

(See also: African Convention on the Conservation of Nature and Natural Resources, Algiers, 15 September 1968, OAU Doc. No. CAB/LEG/24.1. .(entered into force on June 16, 1969).

[458] The Revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395).

[459] African Convention on the Conservation of Nature and Natural Resources, Algiers, 15 September 1968, OAU Doc. No. CAB/LEG/24.1.(entered into force on June 16, 1969).

The African Convention on the Conservation of Nature and Natural Resources was ratified in Algiers on 15th September, 1968.

those African countries that have ratified it.[460] Another known example of regional convention dealing with natural resources conservation in Africa is the African Charter on Human and Peoples' Rights (ACHPR) 1981.[461] The ACHR as earlier discussed is among the regional conventions recognizing the right to a healthy environment.

This chapter examines the various regional/international conventions and agreements Sudan has become a party to. For its part, Sudan has signed or acceded to numerous treaties: multiple and multilateral agreements and enacted domestic legislation in the area of conservation and sustainable use of natural resources. The following section examines the major and relevant conventions and agreements Sudan has signed, ratified or adopted. The subsequent section discusses a few related conventions and agreements issued before and after the Stockholm Conference (e.g. Convention on international trade in endangered species of wild fauna and flora[462] (CITES), Washington, 1973; ratified 1983).

The section also discusses the Rio Conventions of 1992 and some related agreements with special reference to the Sudan (e.g. The United Nations Framework Convention on Climate Change (UNFCCC), Rio de Janeiro; ratified 1993 The last part of this chapter discusses the cross-cutting capacity constraints, needs and priorities at the institutional and legal level in implementation of Multilateral Environmental Agreement (*MEA),* as noted in the 2008 National Capacity Self-Assessment (NCSA) for Global Environmental Management, Sudan.[463]

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[460] Report of the Commission on the Status of OAU/AU Treaties (As at 11 July 2012, EX.CL/728(XXI) Rev.1, para. 7(5).
All States that have not ratified the Revised African Convention on the Conservation of Nature and Natural Resources 2003, and are parties to the Algiers Convention, they are only bound by the provisions set forth in the said 1968 African Convention on the Conservation of Nature and Natural Resources. The provision of the 1968 African Convention on the Conservation of Nature and Natural Resources will also govern their relationship with parties to the Revised African Convention on the Conservation of Nature and Natural Resources 2003.

[461] This Charter was adopted on June 27th, 1981 by the Organization of African Unity (now African Union).

[462] Convention on International Trade in Endangered Species of Wild Fauna and Flora, 3rd March, 1973, 993 UNTS 243.
See also: Convention on International Trade in Endangered Species of Wild Fauna and Flora, March 3rd, 1973. Signed in Washington D. C., Amended in Bonn on 22nd June, 1979; Amended in Gaborone, on 30th April, 1983. Available at:
http://www.cites.org/eng/disc/text.php [Accessed: 14th November, 2014].

[463] National Capacity Self-Assessment (NCSA) for Global Environmental Management, Sudan 2008. (NCSA 2008).

(ii) Some related conventions and agreements issued before and after the Stockholm Conference

The Convention for the Preservation of Wild Animals, Birds and Fish in Africa signed in London on May 19, 1900, (also known as the London Convention of 1900) became the first treaty of its kind in Africa. Numerous theoretical criticisms can be made of the London Convention of 1900. In the first place are the over-appraised possibilities of domestication (Article IV): More critical, however, is how certain animals were stigmatized as dangerous or noxious. Maybe for security reasons, it eluded the minds of the conferees the fact that beasts of prey are valuable. This reality was conveyed home to the authorities of the Tanganyika (modern-day Tanzania) when leopards (*Panthera pardus*) were over-trapped and which took a toll, leading to a rapid upsurge of the leopard's normal prey-baboons and wild pigs. While the Convention permitted the diminishment of in certain of the population of certain wildlife specimens due to their apparent obnoxiousness, this was independent of the nutritional, social, cultural or profound spiritual value that such species might have had for the local people. Additionally, by focusing on only fauna might have implication that forests and plant species were infinite and subsequently set the phase for the deforestation that resulted.[464]

The more practical issues faced by the London Convention of 1900 were political in nature. For instance, Portugal declined to ratify the Convention until the accession by administrations south of the Zambesi. The French deliberately delayed until ratification by countries lying within the prescribed zone who were not parties to the London Convention of 1900 (Ethiopia and Liberia); The treaty was never ratified by those countries.[465] As explained earlier, the final outcome was that the Convention never truly came into force as an international agreement. However, one-sided action was made by several of the colonial

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[464] Takang, Manyitabot J. From Algiers to Maputo. The Role of the African Convention on the Conservation of Nature and Natural Resources in the Harmonization of Conservation Policy in Africa. Journal of International Wildlife Law & Policy 2014, 17(4): 169.

[465]Orsinger, Victor J. "Natural resources of Africa: Conservation by legislation." *African Law Studies* 1971: 5(29): 31 (Orsinger 1971). *See also:* Takang, Manyitabot J. From Algiers to Maputo. The Role of the African Convention on the Conservation of Nature and Natural Resources in the Harmonization of Conservation Policy in Africa. Journal of International Wildlife Law & Policy 2014, 17(4): 167-169.

powers, particularly Great Britain. Despite the fact that the 1900 London Convention was a disappointment in its endeavor at international co-ordination of wildlife protection, it was effective in inciting some wildlife legislation, remarkably in the British colonies.

A comprehensive international treaty focusing on forests within the context of natural resouces and preserving fauna and flora in the natural state is the *Convention Relative to the Preservation of Fauna and F1ora in the Natural State signed in London on November 18, 1933*.[466] In attempts to endeavor to enhance the 1900 London Convention failed to acquire any noteworthy high-level bolster until 1931. A draft convention was prepared and in 1933 a meeting of the representatives of ten powers took place in London. The subsequent convention underlined five essentials: (l) national parks and reserves, (2) protection of endangered species, (3) curbing illegal ivory trade, (4) weapons limitation approach, .and. (5) provision related to mutual consultation and scheduling future meetings. The "Convention Relative to the Preservation of Fauna and Flora in the Natural State," also known as the London Convention of 1933 was signed on 8th November, 1933, by the following countries: South Africa, Belgium, United Kingdom, Egypt, Spain, France, Italy, Portugal and the Sudan.

Article I of The Convention rendered it fully applicable to every African territory administered by the signatory countries. Article VIII make simpler the variety of Schedules made by the 1900 Convention. Rather than endeavoring to identify everything, regardless of whether useful or noxious, the 1933 Convention classified animals into two classes for exact protection. Class A are named "prohibited" and animals belonging to this group may never be killed; Class B animals are named "protected" which implies that animals belonging to this group may be hunted only with a special license. Convention Relative to the Preservation of Fauna and F1ora in the Natural State signed in London on November 18, 1933[467] for the protection of Africa's wildlife as planned by the European colonizers failed to take into consideration the wellbeing of local populations.[468]

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[466] Orsinger, Victor J. "Natural resources of Africa: Conservation by legislation." *African Law Studies* 1971: 5(29):29 (Orsinger 1971).

[467] Orsinger, Victor J. "Natural resources of Africa: Conservation by legislation." *African Law Studies* 1971: 5(29):29 (Orsinger 1971).

[468] Takang, Manyitabot J. From Algiers to Maputo. The Role of the African Convention on the Conservation of Nature and Natural Resources in the Harmonization of Conservation Policy in Africa. Journal of International Wildlife Law & Policy 2014, 17(4): 167-169; *See also:* Orsinger, Victor J. "Natural resources of Africa: Conservation by legislation." *African Law Studies* 1971: 5(29): 168 (Orsinger 1971).

The contrasts between the 1900 and 1933 Conferences originate from the 30 years of experience and the more united commitment which the conferees conveyed to the second meeting in London. The practical outcome was that numerous African territories, regardless of whether they were receiving new enactment or changing the laws got from the 1900 Convention, presented regardless of whether they were trying to adopt new legislation or amend the laws resulting from the 1900 Convention, presented robust controls on the trophy traffic and engaged in establishing more parks and reserves.

The Convention for the Preservation of Wild Animals, Birds and Fish in Africa signed in London on May 19, 1900 and Convention Relative to the Preservation of Fauna and F1ora in the Natural State signed in London on November 18, 1933 led to the creation of Africa's nature parks in Africa.[469] An example of the legislation enacted not long after the Convention became effective is the Sudan's Preservation of Wild Animals Ordinance.[470] This ordinance of the Sudan is just a single case of the legislative reaction to the 1933 London Convention. A few nations maintain the structure of legislation on the basis of the 1900 Convention and only included sections or amended regulations with a specific end goal to incorporate the highlights underscored by the 1933 Convention: Viz., stricter regulation of trophy, the prohibition on certain hunting, methods, and the greater emphasis placed on national parks and reserves.

The response of the Sudan administration to the 1933 Convention Relative to the Preservation of Fauna and F1ora in the Natural State[471] was signed on January 1, 1936,[472] Sudan passed the Ordinance with respect to regulation of gaming activities. On April 15, 1939, the National Parks, Sanctuaries and Reserves Regulations were set up which, notwithstanding regulating with parks and reserves, particularly sets up two national parks, three sanctuaries, and fifteen reserves.[473] Sudan's law is just a single case of the legislative reaction to the 1933 London Convention. A few countries held the structure of legislation

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[469] Cioc, Mark. The game of conservation: international treaties to protect the world's migratory animals. Ohio University Press series in Ecology and History, Athens. 2010:3 (Cioc 2010).

[470] 1st January 1936, now Title XVI, Subtitle 1 (1955 Revised Edition of the Laws of Sudan).

[471] Convention Relative to the Preservation of Fauna and F1ora in the Natural State signed in London on November 18, 1933. 172 LNTS 241.

[472] Convention Relative to the Preservation of Fauna and F1ora in the Natural State signed in London on November 18, 1933. 172 LNTS 241 [1st January 1936, now Title XVI, Subtitle 1 (1955 Revised Edition of the Laws of Sudan)].

[473] Orsinger, Victor J. "Natural resources of Africa: Conservation by legislation." *African Law Studies* 1971: 5(29): 35. (Orsinger 1971).

in view of the 1900 Convention and simply added sections or amended regulations to incorporate the highlights underlined by the 1933 Convention: in particular the stricter trophy regulations, the prohibition on certain hunting strategies, and the stronger emphasis on parks and reserves.[474]

The country needs a comprehensive piece of environmental legislation to protect important natural resources, including land, water, fauna and flora.[475], [476] In preparation of this, assessment of pilot projects will be crucial for the realization of the rights[477] and interests of forest dependent communities, as well as the use of scientifically sound data as a basis for policy-making on the need for a fair and equitable distribution of benefits and sustainable utilization of forest biodiversity in the management and use of forests in the Sudan.[478]

Concluding remarks: *Convention for the Preservation of Wild Animals, Birds and Fish in Africa signed in London on May 19, 1900 and Convention Relative to the Preservation of Fauna and F1ora in the Natural State signed in London on November 18, 1933.*

Locally created conventions with respect to the protection of fauna and flora were first sparse in Africa. Convention for the Preservation of Wild Animals, Birds and Fish in Africa signed in London on May 19, 1900, was the first treaty of its kind in Africa. Orsinger [479] traces the evolution of the international co-operation for the conservation of natural resources in Africa versus environment debate; through the various source materials and citing examples of two Conventions (namely the Convention for the Preservation of Wild Animals, Birds and Fish in Africa signed in London on May 19, 1900 and Convention Relative to the Preservation of Fauna and F1ora in the Natural State signed in London on November 18, 1933)[480] for the protection of Africa's wildlife as planned by the European colonizers. These conventions are also considered as

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[474] Orsinger, Victor J. "Natural resources of Africa: Conservation by legislation." *African Law Studies* 1971: 5(29): 35. (Orsinger 1971).

[475] Chasek, Pamela S. The Global Environment in the Twenty-First Century. United Nations University Press, 2000. 469 p. (Chasek 2000).

[476] Francis, John. G. and Easton David. *Land wars*. Lynne Rienner Publishers Inc., US, 2003. 215 p. (Francis 2003).

[478] Colchester et al. 2006:5.

[479] Orsinger 1971.

[480] Orsinger 1971:29.

extension of European colonizers' domestic interest to their African colonies.[481] The wellbeing of local populations was unmistakably of little concern, assuming any, importance to the drafters of the Convention.[482]

The final outcome was that the Convention never truly came into force as an international agreement. However, one-sided action was made by several of the colonial powers, particularly Great Britain. Despite the fact that the 1900 London Convention was a disappointment in its endeavor at international co-ordination of wildlife protection, it was effective in inciting some wildlife legislation, remarkably in the British colonies.

The above-mentioned first two treaties: Convention for the Preservation of Wild Animals, Birds and Fish in Africa signed in London on May 19, 1900 and Convention Relative to the Preservation of Fauna and F1ora in the Natural State signed in London on November 18, 1933 led to the creation of Africa's nature parks in Africa.[483]

A later convention intended for independent Africa was the 0rganization of African Unity (OAU) Convention on the Conservation of Nature and Natural Resources, 1968.[484] Orsinger also provided a tabulation of conservation legislation in each African nation.[485] The African Convention on the Conservation of Nature and Natural Resources 1968 was portrayed as one whose implementation left much to be desired: One of its important shortcomings was its inability to provide the administrative, legal, institutional and financial related establishments for its implementation and the pragmatic means to regard the universal law guideline of "*pacta sunt servanda*."[486]

A representative example of the legislative response to the 1900 Convention

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[481] Sánchez, Vincente and Juma, Calestous. eds. Biodiplomacy: Genetic Resources and International Relations. African Centre for Technical Studies Press: Nairobi. 1994: 36-37 (Sánchez & Juma 1994);
Takang, Maanyitabot J. From Algiers to Maputo. The Role of the African Convention on the Conservation of Nautral Resources in the Harmonization of Conservation Policy in Africa. *Journal of International Wildlife Law & Policy*. 2014, 17(4):167 (Takang 2014) citing: Du Saussay, Christian. Legislation on Wildlife and Protected Areas in Africa 1, Legis Study No. 25. 1984).

[482] Takang 2014: 167-169; Orsinger 1971: 168.

[483] Cioc, Mark. The game of conservation: international treaties to protect the world's migratory animals. Ohio University Press series in Ecology and History, Athens. 2010:3 (Cioc 2010).

[484] Orsinger, 1971:29.

[485] See Orsinger 1971: 40-55.

[486] IUCN. *An introduction to the African Convention on the Conservation of Nature and Natural Resources,* IUCN, Gland, Switzerland and Cambridge, UK. 2004:17.

for the Preservation of Wild Animals, Birds and Fish in Africa[487] was the Wild Animals Preservation Ordinance of the Gold Coast (now Ghana) 1901[488] and this acted as the framework for the conservation of wild animals, birds, and fish. The London Convention of 1900 helped in the creation of the game reserves in the colony, Ashanti and Northern Territories in the Gold Coast (now Ghana).[489]

Revised African Convention of Nature and Natural Resources 2003 (Maputo Convention)[490] represents a thorough revision of the original African Convention on the Conservation of Nature and Natural Resources, adopted in Algiers, Algeria on 15th September, 1968[491] It was adopted in Maputo, Mozambique on 11th July, 2003. This revised and contemporary Convention has not yet entered into force owing to insufficient ratification. It takes account of the many changes in policy perspectives being witnessed in Africa towards conservation, and in particular its relationship to people and their livelihoods.[492]

The newly revised and contemporary Convention tackles a broad range of issues that includes management of natural resources e.g. abiotic resources (soil and land, air and water) and biotic resources. It also addresses issues regarding processes and activities that are detrimental to the environment and natural resources. It explores the introduction of procedural rights and makes ample provision for mechanisms to aid its implementation, including a suitable secretariat.[493] This Convention has moved far from a concept of natural resources conservation for the most part or mainly focused on utilitarian purposes. The Sudan is among the list of countries that signed the Revised African Convention on the Conservation of Nature and Natural Resources (Maputo Convention 2003).[494] The Sudan became a signatory to this Convention on 30th June, 2008.

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[487] Convention for the Preservation of Wild Animals, Birds and Fish in Africa, signed in London on May 19, 1900 (also known as the London Convention of 1900).

[488] Ghana Government National Archives, CO 76/86. (Cap 246), 1901.

[489] Mawere, Mwagaradzi, and Nyamekye, Samuel Awuah, eds. *Between Rhetoric and Reality. The State and Use of Indigenous Knowledge in Post-Colonial Africa*. Langa RPCIG: Cameroon. 2015. (Mware and Nyamekye 2015).

[490] The revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395),

[491] African Convention on the Conservation of Nature and Natural Resources, Algiers, 15 September 1968, OAU Doc. No. CAB/LEG/24.1 (entered into force on June 16, 1969).

[492] IUCN. *An introduction to the African Convention on the Conservation of Nature and Natural Resources,* IUCN, Gland, Switzerland and Cambridge, UK. 2004:ix..

[493] IUCN 2004: vii

[494] The revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395).

Sudan signed the *Revised African Convention on the Conservation of Nature and Natural Resources (Maputo Convention 2003), Maputo 2003*[495] on 30th June, 2008. This Convention was adopted by the Assembly of the African Union on date: 11th July, 2003 in Maputo and is not yet in force. Article XXXIV of the Revised African Convention on the Conservation of Nature and Natural Resources 2003[496] calls for all States that have not ratified ths Revised African Convention on the Conservation of Nature and Natural Resources 2003, and are parties to the African Convention on the Conservation on Nature and Natural Resources 1968 (Algiers Convention), they are only bound by the provisions set forth in the said 1968 African Convention on the Conservation of Nature and Natural Resources.[497] The provisions of the 1968 African Convention on the Conservation of Nature and Natural Resources will also govern the relationship between Parties to the original Convention and Parties to this Convention.[498]

As earlier explained, the content of the Revised African Convention of Nature and Natural Resources 2003, represents a thorough revision of the original African Convention on the Conservation of Nature and Natural Resources, adopted in Algiers, Algeria on 15th September, 1968;[499] entered into force on 16th June, 1969. The African Convention on the Conservation of Nature and Natural Resources 1968 which was the original Convention was described as one whose implementation left much to be desired: One of its significant shortcomings was its inability to provide the administrative, legal, institional and financial related establishments for its implementation and the pragmatiuc means to respect the universal law guideline of "*pacta sunt servanda*."[500]

As spelt out in preamble of the Revised African Convention on the Conservation of Nature and Natural Resources (Maputo Convention 2003),[501] it is the result of a process of amendment to the original Convention:

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[495] The Revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395).

[496] The Revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395), Article XXXIV.

[497] The Revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395), Article XXXIV(1).

[498] The Revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395), Article XXXIV(2).

[499] African Convention on the Conservation of Nature and Natural Resources, Algiers, 15 September 1968, OAU Doc. No. CAB/LEG/24.1.(entered into force on June 16, 1969).

[500] [500] IUCN. *An introduction to the African Convention on the Conservation of Nature and Natural Resources,* IUCN, Gland, Switzerland and Cambridge, UK. 2004:17.

[501] The Revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395).

"Convinced that the above objectives would be better achieved by amending the 1968 Algiers Convention on the Conservation of Nature and Natural Resources by expanding elements related to sustainable development."[502]

Article 20 of the Vienna Convention on the Law of Treaties,[503] adopted on 22nd May, 1969, went into force on 27th January, 1980 spells out that:

"every treatuy in force is binding upon the parties to it and must be performed by them in good faith"[504]

The modified content tackles this weakness by furnishing the Convention with present day institutional courses of action. A Conference of the Parties (the "COP"), a Secreatariat and auxiliary bodies mechanisms are included as a noteworthy innovatuions. In addition, the provisions relative to national authorities and corperation have been significantly strengthened. The original Algiers Convention failed to provide for financial resources to make sure of its implementation, and this was observed as a major disadvantage, addressed by Article XXVIII of the Revised Convention, on financial resources.

It is an update of the 1968 Convention and brings this to the level and standard of modern multilateral environmental agreements. This Convention has not yet entered into force. This revised and contemporary convention takes account of the many changes in policy perspectives we have witnessed in Africa towards conservation, and in particular its relationship to people and their livelihoods.[505] The newly revised Convention covers a broad range of issues, including aspects of natural resources management, e.g. abiotic resources (soil and land, air and water) and biotic resources. It also covers processes and activities that are detrimental to the environment and natural resources. It considers the introduction of procedural rights and makes adequate provision for mechanisms

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[502] The Revised African Convention on the Conservation of Nature and Natural Resources, 11 July, 2003, IUCN (ID: TRE-001395), Preamble.

[503] Convention for the protection of the Ozone layer, Vienna (Vienna Convention), 22 nd March, 1 985. TIAS No. 11,097; 1513 UNTS 323; 26 ILM 1529 (1987).

[504] Convention for the protection of the Ozone layer, Vienna (Vienna Convention), 22 nd March, 1 985. TIAS No. 11,097; 1513 UNTS 323; 26 ILM 1529 (1987), Article 20.

[505] IUCN. *An introduction to the African Convention on the Conservation of Nature and Natural Resources,* IUCN, Gland, Switzerland and Cambridge, UK. 2004:ix.

to help its implementation, including an adequate secretariat.[506] This Convention has moved away from a concept of natural resouces conservation mainly centered on utilitarian purposes.

It has taken up a renewed commitment towards introducing innovative approaches for the conservation of nature.in all aspects: The Sudan, like mant African nations, have endured excessive exploitation of natural resources. Despite the fact that the former colonial authorities promulgated some norms both at the regional/provincial and domestic levels in order to prevent environmental destruction, these norms only placed an emphasis on the development the sectors of natural resources and were generally "*use oriented" and "rule oriented*."[507]

They were more centered on the allocation and exploitation of natural resources than natural resources management. For instance, this "command–and-control" colonial legislation was enacted with the purpose of regulating the issue of hunting and fishing permits, control of forest exploitation through a system of licenses or the allocation of water rights. The post-independence era has seen combined environmental degradation, characterized by decline in quality and reduction in ecosystem goods and services, coupled with adverse socioeconomic impacts.

At independence, Sudan, like in all parts of Africa, in every case inherited the fundamental characteristic of African environmental historiography which stresses *"colonial capitalism and imperialism as environmental contexts and processes"*[508] The Sudanese environmental history has been dominated by the command-and-control and sector specific characteristics which have also been characteristically prominent in colonial environmental legislation.

This being the case, between the 1950s and 1970s, this legislation turned out to be more ""resource oriented"[509] as the focus progressively moved to the long term management and sustainable use of natural resources. Since the 1970s, there has been a critical developmental and refinement process in African environmental legislation.[510]

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[506] IUCN. *An introduction to the African Convention on the Conservation of Nature and Natural Resources,* IUCN, Gland, Switzerland and Cambridge, UK. 2004, vii. (IUCN 2004).

[507] Ogolla, Bondi D. Environmental Law in Africa: Status and Trens: International Business Lawyer, 1995 (Ogolla 1995).

[508] Kwashirai, Vimbai C. Environmental History of Africa, Center of Environmental History, University of Sussex. 2012:1. (Kwashirai 2012).

[509] IUCN 2004 citing Ogolla 1995:413.

[510] IUCN 2004:3.

Comnsidering the call for reform, the African Convention on the Conservation of Nature and Natural Resources 1968[511] represented the basis for the efforts of newly independent African nations, including the Sudan, to address nature conservation issues related to environment and natural resource base. As mentioned earlier, the African Convention on the Conservation of Nature and Natural Resources 1968[512] was centred on living resources with a purpose of supporting the creation of protected areas and for specific conservation measures for species that are listed in its Annex. It also provided the ideal surrounding for the conservation of other natural resources such as soil and water for the consideration of environmental concerns in development plans, and for research and education.[513]As said before, the African Convention on the Conservation of Nature and Natural Resources 1968 was focused on living assets advancing the production of secured territories and for particular protection measures for species that are recorded in its Annex. It additionally gave the perfect encompassing to the protection of other normal assets, for example, soil and water for the thought of ecological worries being developed plans, and for research and training

With respect to athe call for reform, the the African Convention on the Conservation of Nature and Natural Resources 1968 lacked strong institutional structures and it experienced a significant gap between its theoretical objective and its effective and actual implementation by the Parties. The problems significantly limited the capacity of African countries to establish mechanisms to adopt a genuinely regional strategy to address issues of compliance and enforcement. According to IUCN,[514] a decade following the adoption of original convention had witnessed the emergence of international environmental law. Owing to all these, and the emerging progress in scientific knowledge in the field of environmental science and subsequent legal development, it became of paramount importance to revise the African Convention on the Conservation of Nature and Natural Resources 1968.[515]

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[511] African Convention on the Conservation of Nature and Natural Resources, Algiers, 15 September 1968, OAU Doc. No. CAB/LEG/24.1.(entered into force on June 16, 1969).

[512] African Convention on the Conservation of Nature and Natural Resources, Algiers, 15 September 1968, OAU Doc. No. CAB/LEG/24.1.(entered into force on June 16, 1969).

[513] IUCN 2004:3.

[514] IUCN 2004:4-5.

[515] African Convention on the Conservation of Nature and Natural Resources, Algiers, 15 September 1968, OAU Doc. No. CAB/LEG/24.1.(entered into force on June 16, 1969).

Another international agreement between governments yet focuses on forests within the context of natural resources and aims at ensuring that international trade in endangered species of wild anaimals and plants does not threaten their survival is the *Convention on international trade in endangered species of wild fauna and flora*[516] *(CITES), Washington, 1973.* Sudan has become a signatory to the "Convention on International Trade in Endangered Species of Wild Fauna and Flora,"[517] also known as the Washington Convention (CITES) on 24th January, 1983. The Text of the Convention – which originated from a 1963 IUCN resolution – was agreed by governments in 1973, and CITES entered into force on 1st July, 1975. It aims at ensuring that international trade in specimens of wild animals and plants does not threaten the survival of the species in the wild, and it accords varying degrees of protection to several species of animals and plants.

CITES species are classified in three Appendices depending on the level of threat to the survival of a species. Appendix I consists of species threatened with extinction, for which CITES permits trade only under strict conditions. Schedule 1 lists the CITES species that are recognized as endangered or threatened within the Sudan. According to the Sudan Government's Wildlife Conservation and Federal Parks Act 1986, Article 17(1), it is prohibited to hunt animals listed in Schedule 1: It is directed that:

> "No person shall hunt any animal listed in schedule I to this Act."[518]

Appendix II consists of species which are provided a lesser level of protection for a lesser threat to survival; CITES calls for controlled trade.

Schedule II lists the CITES species that are provided a lesser level of protection for a lesser threat to survival and for which CITES calls for controlled trade within the Sudan. In order to hunt animals in this category in the Sudan, one is requested to hold a special permit.[519] In view of the aforementioned considerations, the Sudan Government's Wildlife Conservation and Federal Parks Act 1986, Article 17(2) stipulates that:

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[516] Convention on International Trade in Endangered Species of Wild Fauna and Flora, March 3rd, 1973, 993 UNTS 243; 27 UST 1087; TIAS 8249.
See also: Convention on International Trade in Endangered Species of Wild Fauna and Flora, March 3rd, 1973. Signed in Washington D. C., Amended in Bonn on 22nd June, 1979; Amended in Gaborone, on 30th April, 1983. Available at:
http://www.cites.org/eng/disc/text.php [Accessed: 14th November, 2014].

[517] ibid.

[518] Sudan Government's Wildlife Conservation and Federal Parks Act 1986, Article 17(1)

[519] 3 Laws of the Sudan 182 (6th ed. 1992), SS. 17(1), 24(a)(d)..

"No person shall hunt any animal listed in schedules II and III to this Act, except under a valid license issued in accordance with the provisions of this Act"[520]

A Party to the Convention may list a species unilaterally in Appendix III and thereby request other Parties for assistance in controlling their trade. Appendix III consists of species under consideration for regulation within a particular member nation and for which the co-operation of other member nations is required to control international trade. Conversely of Appendix II to III, a species is listed in Appendix II by a vote of the CITES Parties. Schedule III lists the CITES species that are recognized as species under consideration for regulation within Sudan and for which the co-operation of other member nations is required to control international trade. In the Sudan, a general permit is prerequisite in order to hunt animals categorized in Appendix III.

This convention was ratified by the Government of the Sudan in 1983 with the aim of instituting a special regime for the preservation of flora and fauna, and to implement its commitment to this convention, Sudan promulgated the Wildlife Conservation and Federal Parks Act 1986.[521] The Sudan Government, Wildlife Conservation and Federal Parks Act 1986 aims to:

"protect and conserve national parks and game animals; hunting areas; use and develop wildlife resources rationally; implement 'the Convention on International Trade in Endangered Species of Wild Fauna and Flora'[522] (CITES) agreement of 1973; provide statistical data on the numbers and distribution of wildlife resources and encourage research into wildlife and their habitats."[523]

The following salient features characterize the Sudan Government, Wildlife Conservation and Federal Parks Act 1986 of 1986[524]:

a) " It delineates the national parks and pinpoints the competent authority that grants permits for entering, staying in and hunting in the parks;

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[520] The Sudan Government's Wildlife Conservation and Federal Parks Act 1986, Article 17(2).

[521] 3 Laws of the Sudan 182 (6th ed. 1992).

[522] Convention on International Trade in Endangered Species of Wild Fauna and Flora, March 3rd, 1973, 993 UNTS 243; 27 UST 1087; TIAS 8249.

[523] Sudan Government, Wildlife and Federal Parks Protection Act of 1986, Khartoum, Sudan.

[524] ibid.

b) It provides a list of the prohibited activities inside national parks, namely the felling of trees, the setting of fires, the excision of parkland, the construction of houses, digging or mining, entry of domestic animals, the carrying of guns, the disruption of water courses, and the culling or disturbing of game;
c) It designates the measures and the competent authority for announcing new areas meant for game reserves and/or bird sanctuaries in which hunting without a permit is absolutely prohibited. The general manager of a park or sanctuary may be entrusted with the responsibility of issuing hunting permits and also the power of determining the rules that govern hunting in terms of the hunting season, the means and duration of hunting, and the types and ages of animals to be hunted;
d) It spells out the regulations for trade in game animals and/or their parts;
e) It specifies the level of penalties for all wildlife violations;
f) It provides a list of the animals that are prohibited from being hunted, animals that may be hunted under permit, and animals that are prohibited from being exported without a permit."

The Sudan Government's Wildlife Conservation and Federal Parks Act 1986 integrates articles 17, 36, 37, 53 and 54 on the animal welfare. These Articles consist of conditions to be satisfied by any individual, pursuing, having wild animal or its trophy and transacting business in them. They consist of conditions under which the Director or other officer affirmed by the Director, issue a support of legitimate proprietorship in respect of any secured animal or trophy.

The Sudan Government's Wildlife Conservation and Federal Parks Act 1986, Article 36 spells out that:

> "No person shall possess any protected animal, whether alive or dead, or the trophy of any such animal, unless such animal or trophy has been lawfully obtained under the authority of a valid license or permit or by other lawful means. The burden of providing lawful possession of any such animal or trophy shall lie with the person possessing such animal or trophy."[525]

The foregoing statement implies no individual should have any protected animal, regardless of whether alive or dead, or the trophy of any such animal, unless such animal or trophy has been legitimately gotten under the expert of a substantial permit or allow or by other legal means. The burden of giving legitimate ownership of any such animal or trophy might lie with the individual having such creature or trophy.

The Sudan Government's Wildlife Conservation and Federal Parks Act 1986, Article 37 provides a framework for management wildlife and national parks

[525] The Sudan Government's Wildlife Conservation and Federal Parks Act 1986, Article 36

under the aegis of a Director of Wildlife and Federal Parks. It also gives effect to the CITES and related international conventions to which Sudan may from time to time be a party. Article 37 of the Sudan Government's Wildlife Conservation and Federal Parks Act 1986, directs that:

> (1) "The Director, or other Officer authorized by the Director in writing on his behalf, may on application, therefore, issue a certificate of legal ownership in respect of any protected animal or trophy, where he is satisfied that such animal or trophy has been lawfully obtained under the authority of a valid license or permit or other lawful means in which the certificate shall include the name of the owner, a description of the animal or trophy concerned, and the date and place of issue."[526]
>
> (2) "No person shall sell or otherwise transfer any schedule I or II, protected animal or trophy unless he is in possession of a valid certificate of legal ownership issued in respect of that animal or trophy. Upon such sale or transfer, such certificate shall, except in case of articles manufactured from parts of protected trophies, be transferred to the person buying or otherwise receiving such animal or trophy."[527]

The Sudan Government's Wildlife Conservation and Federal Parks Act 1986 spells out that any person who contravenes the provisions spelt out in this Act shall be guilty of an offence and, without derogation from his liability under any other provision of this Act, shall be subject to imprisonment for a term or fine which shall be a matter for determination at the court's discretion or to both such imprisonment and such fine, subject to provisions of Article 53 on penalties:

> "Any person contravening any of the provisions of this Act shall be liable to imprisonment for a term not exceeding one year or fine which shall be determined by the court or to both such imprisonment and such fine, and for any person contravening any of the provisions of this Act for a second time or more, shall be liable for imprisonment for a term not exceeding two years or fine which shall be determined by the court or to both such imprisonment and such fine".[528]

The Sudan Government's Wildlife Conservation and Federal Parks Act 1986 spells out disciplinary procedure where a Game Officer or other member of Wildlife Conservation Forces commits offence or misconduct, subject to provisions of Article 54 on penalties:

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[526] Sudan Government's Wildlife Conservation and Federal Parks Act 1986, Article 37.
[527] Sudan Government's Wildlife Conservation and Federal Parks Act 1986, Article 37.
[528] Sudan Government's Wildlife Conservation and Federal Parks Act 1986, Article 53.

> "Any contraventions of the provisions of this Act or any regulation issued hereunder by the game Officer or other member of Wildlife Conservation Forces shall, in addition to any prosecution brought under this Act render such game Officer or other member of Wildlife Conservation Forces liable to disciplinary action." [529]

The convention plays vital roles in supporting the institution of regulations with the aim of controlling hunting, killing and capturing of fauna; referring to the constitution of national parks and reserves and the prohibition of certain methods. Areas of particular importance to biodiversity protection include the "Sudd" being designated as Ramsar site;[530] Declaration of Dongonab National Park in the Red Sea Coast and the establishment of Wadi Howr in north eastern sahara desert.

However a lacuna in the law exists from the failure to implement CITES thoroughly.[531] The Act focuses mainly on the conservation of wild fauna and their habitats at the expense of a balancing focus that conserves species of wild flora and wild fauna.With regard to the issue of lack of enforcement, existing laws have lacks, however are in any case usable for an extensive variety of uses, from EIA arrangements to wildlife poaching to pollution control.[532] This being the case, enforcement of the current environmental legislation is to a great degree restricted at all levels. The advancement of capable institutions – regardless of the possibility that supported by improved legislation – would hardly result in any genuine change unless the culture of non-enforcement is addressed concurrently, beginning at the highest level.

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[529] The Sudan Government's Wildlife Conservation and Federal Parks Act 1986, Article 54.

[530] The Convention on Wetlands of International Importance especially as Waterfowl Habitat which recognizes the ecological importance of wetlands was signed in Ramsar on 2nd February, 1971 and entered into force on 21st December, 1975. This convention also deals forests in the context of natural resources. Contracting parties are obliged to designate suitable wetlands within their territories for inclusion in a list of Wetlands of International Importance. For the conservation of wetland areas, each contracting party is expected to promote the wise use of wetland in its territory.

[531] UNEP. Post-Conflict Environmental Assessment Programme: Sudan. United Nations Environment Programme (UNEP). Nairobi, Kenya. 2007: 266-273; 283 and 303. *See also:* Campton, Paul and Devuyst, Dimitri. *Environmental Management in Practice: Instruments for Environmental Management Vol. 1*. Routledge: London and New York. 2002:467 (Campton & Devuyst 2002) *citing*: Trolldalen, Jon M. International Conflict Resolution: The Role of the United Nations, World Foundation for Environment and Development, Washington, DC. 1992 (Trolldalen 1992).

[532] UNEP. Post-Conflict Environmental Assessment Programme: Sudan. United Nations Environment Programme (UNEP). Nairobi, Kenya. 2007:303.

The prevalent lack of strong quantitative data on all environmental aspects of the Sudan limits rational planning for resource management and conservation. Furthermore, the lack of solid and reliable signals the existence of real issues: which may be given by up to date data – makes it hard to try and bring issues to light at the government level. A critical interest in accumulation of information, ideas and insights as a basis for sound management decisions; data dissemination and management ought to in this manner, form an early stage of any programme to enhance environmental governance in the Sudan.[533]

Furthermore, national management authority and scientific authority to grant permits and to ascertain the conditions and limitations on the export, import and re-export of species has not been designated. Such powers are exercised solely by the Director of the Wildlife Public Administration. It is respectively submitted that national management and scientific authorities should be designated and that stricter domestic measures should be adopted to protect the fauna as well as the flora.

A convention which also plays important role in conservation of species intimately connected to providing habitats in the forest that migratory species of wild animals frequent is the: *"Conservation of Migratory Species of Wild Animals, (Bonn Convention or CMS). adopted in Bonn, Germany in 1979 and came into force in 1985."*[534] The Sudan ratified the Convention in 2002. It is known that the loss of forest habitat renders migratory species of wild animals at risk, vulnerable or threatened. Contracting Parties work together with the aim of conserving migratory species of wild animals and their habitats. They work by providing strict protection for the conservation of a wide array endangered migratory species worldwide through the negotiation and implementation of multilateral agreements and action plans:

> "for the conservation and management of migratory species which need or would benefit from international cooperation, and by undertaking cooperative research activities." [535]

The Agreement on the Conservation of African-Eurasian Migratory

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[533] ibid.

[534] Convention on the Conservation of Migratory Species of Wild Animals, 23rd June, 1979, 1651 UNTS 355; 19 ILM 15 (1980); ATS 1991/32; BTS 87 (1990), Cm. 1332. Convention on the Conservation of Migratory Species of Wild Animals, 23rd June, 1979. Adopted in Bonn, Germany, on 23rd June, 1979; entered into force on 1st November, 1983. Available at:
http://www.cms.int/documents/index.htm [Accessed: 14th November, 2014].

[535] JNCC (Joint Nature Conservation Committee).Available at:
http://jncc.defra.gov.uk/page-1366 2013. [Accessed: October 15, 2013]. (JNCC 2013).

Waterbirds (AEWA) 1995[536] is an agreement created under the auspices of the Convention on the Conservation of Migratory Species of Wild Animals (CMS). Its conclusion was drawn in The Netherlands on 16th June, 1995. It entered into force on 1st November, 1999. The geographical scope of the Agreement stretches from northeastern Canada and Arctic Siberia toward the southernmost tip of Africa and incorporates 119 nations.

The Agreement on the Conservation of African-Eurasian Migratory Waterbirds 1995[537] was founded to coordinate efforts to conserve migratory species, particularly those with an unfavourable conservation status, over their entire range. It aims at conserving bird species that rely on patchily distributed and normally transitory wetlands along their migration routes in a vast matrix, for completion of their lifecycle. These bird species migrate across international borders in their migration patterns. It also aims at restoring the migratory species or a habitat concerned to a favourable conservation status. The Agreement incorporates a legally binding Action Plan.

It is expected of Parties to adopt coordinated measures to keep migratory water birds in an ideal conservation status or to restore them to such a status, taking into consideration the precautionary principle.[538] All range States of the concerned species can consent to the Agreement regardless of the possibility that they are not Parties to the Bonn Convention. This agreement offers institutional and financial prospects. Sudan is a contracting Party to this Agreement (Date of entry into force: 1st November, 1999).

Sudan as a contracting Party reported about the implementation of AEWA for the period 2012-2014.[539] In this report, Sudan was requested to list any reservations that the Contracting Party has made (assuming any) on deposition of its instruments of accession on provisions of the Agreement or its Action Plan

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[536] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995, UKTS. 2003 No. 13.

[537] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995, UKTS. 2003 No. 13.

[538] *See*: Lenten, B., "A Flying Start for the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)," 4 Journal of International Wildlife Law and Policy (2001), p. 159-164

Adam, R., "Waterbirds, the 2010 Biodiversity Target, and Beyond: AEWA's Contribution to Global Biodiversity Governance," 38 Environmental Law Review (2008), p. 87-137

[539] UNEP/AEWA/Sudan. Convention on the Conservation of Migratory Species of Wild Animals (CMS) instrument: The Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA): National Reports UNEP/AEWA/Nat. Report/MOP6/Sudan. 2015. (UNEP/AEWA/Sudan 2015).

as spelt out in Article XV of AEWA.[540] It was reported that due to economic sanctions upon the country, Sudan faced several problems with regard to the payment of the annual subscriptions, while the country is willing to pay the fees, however at last the country managed to pay fees for the last three years.[541] One of the most significant stopover sites for migratory waterbirds moving between Africa, Europe and western Asia is Bagga riverine wetland located in central Sudan, south of Khartoum. Since Sudan is a Party to "the Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 79),"[542] and therefore has obligations to conserve wetlands that harbour migratory waterbirds, such as Bagga wetland.[543]

With regard to a few aspects of institutional information, the Administrative Authority, the Focal Designated National Respondent and the other contributors provided updates on the National AEWA in a report. In the Sudan, the designated National AEWA Administrative Authority, the Wildlife Conservation General Administration (WCGA)-Ministry of Tourism, Antiquities and Wildlife reported on the conservation status of waterbirds as well as their biological characteristics (see Table 7).

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[540] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995, UKTS. 2003 No. 13. Article xv.

[541] ibid.: 1.

[542] Convention on the Conservation of Migratory Species of Wild Animals, 23rd June, 1979, 1651 UNTS 333; 19 ILM 15 (1980); ATS 1991/32; BTS 87 (1990), Cm. 1332. *See also:* Convention on the Conservation of Migratory Species of Wild Animals, 23rd June, 1979. Adopted in Bonn, Germany, on 23rd June, 1979; entered into force on 1st November, 1983. Available at: http://www.cms.int/documents/index.htm [Accessed: 4th November, 2014].

[543] Tirba, Ali K. Migratory waterbirds in the Bagga riverine wetland of central Sudan: challenges for integrated wetland management.*Waterbirds around the world. In:* G.C. Boere, C.A. Galbraith and D.A. Stroud (eds.). The Stationery Office, Edinburgh, UK. 2006. pp. 721-724.

Table 7, Conservation Status of Waterbird Species and Biological Characteristics (modified from UNEP/AEWA/Sudan 2015).[544]

AEWA Species Waterbird Species: Scientific Name	AEWA Species Waterbird Species: English Common name(s)	Native/Non-Native Waterbird Species	Confirmation of species occurrence
Tachybaptus ruficollis	Little Grebe	Non-native	The species occurs in the country
Podiceps nigricollis	Black-necked Grebe, Eared	"	"
Egretta garzetta	Little Egret	"	"
Ardea cinereal	Grey Heron	"	"
Ciconia Ciconia	White Stork	"	"
Plegadis falcinellus	Glossy Ibis	"	"
Dendrocygna viduata	White-faced Tree Duck, White-faced Whistling Duck	"	"
Alopochen aegyptiacus	Egyptian Goose	"	"

[544] ibid.: 5 – 24.

Anas Penelope	Wigeon, Wigeon	“	“
Anas querquedula	Garganey, Garganey Teal	“	“
Gallinula angulate	Lesser Moorhen	“	“
Himantopus himantopus	Black-winged Stilt	“	“
Philomachus pugnax	Ruff	“	“

Subject to AEWA Action Plan, paragraph 2.1.2(b),[545] the Sudan Government's Wildlife Conservation and Federal Parks Act 1986[546] regulates the mode of taking of enlisted birds and eggs of all populations by prohibiting certain hunting methods. In attempts to sustain livelihood uses, the country has not been exempted from any of the prohibitions listed in AEWA Action Plan, paragraph 2.12(b).[547] In terms of protection of wildlife, the Sudan Government's Wildlife Act 1986 provides strict regulations on the protection of birds and their habitat and any illicit take of birds their nests or even eggs.Article 23 of the Wildlife Conservation and Federal Parks Act 1986,[548] directs the prohibition of the following methods of hunting: Use of chemicals, poisons or baits; use of explosives; recorded sounds in attraction of animals or birds and use of shot guns caliber. Plans are far advanced in the Sudan to update the Government's Wildlife Conservation and Federal Parks Act 1986 to cover the implementation of Agreement on the Conservation of African-Eurasian Migratory Waterbirds 1995, biodiversity, raptors, soaring birds etc

UNEP/AEWA/Sudan 2015[549] reported that the country has in place and enforces legislation which prohibits the introduction into the environment of alien invasive species of animals and plants that could be harmful to migratory waterbirds (AEWA Action Plan, paragraph 2.5.1).[550] The sources of legislation includes: The Sudan Government's Wildlife Conservation and Federal Parks Act 1986, Wildlife Conservation Administration Sudan; Environmental Protection Act 2001, Ministry of Environment, Forestry and Physical Development-Higher Council for Environment and Natural Resources-Secretariat General. Agricultural and Animal Quarantine at the airport also controls the introduction of any plant or animal without a permit. Sudan is also signatory to the Convention on International Trade in Endangered Species of Wild Fauna and Flora **(**CITES**)** since 1983.[551] The Criminal Act 1991 prevents the introduction of Water hyacinth into any part in the Nile.[552]

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[545] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995, UKTS. 2003 No. 13.Annex 3, para. 2.1.2(b).

[546] Sudan Government's Wildlife Conservation and Federal Parks Act 1986.

[547] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995, UKTS. 2003 No. 13. Annex 3, para. 2.1.2(b).

[548] Sudan Government's Wildlife Conservation and Federal Parks Act 1986, Article 23.

[549] UNEP/AEWA/Sudan 2015:16

[550] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995, UKTS. 2003 No. 13.Annex 3, para. 2.5.1.

[551] UNEP/AEWA/Sudan 2015:28

[552] UNEP/AEWA/Sudan. Convention on the Conservation of Migratory Species of Wild Animals (CMS) instrument: The Agreement on the Conservation of African-Eurasian

It is documented[553] that the Sudan failed to use the AEWA Guidelines to prevent the introductions of non-native waterbird species from becoming potential threat to indigenous species.[554] However, the Sudan Government's Wildlife Conservation and Federal Parks Act 1986. and CITES 1973[555] were used, instead and found very effective in prohibiting deliberate attempts to introduce non-native waterbird species into the environment.. The existence of Agricultural Quarantines and Animal Quarantines Services plays important roles in ensuring the prohibition of any non- native species without permit.

In terms of Habitat Conservation, the report indicates that Sudan partially identified the network of all sites of international and national importance for the migratory water bird species/populations listed on AEWA Action Plan, paragraph 3.1.2.[556] The following paragraphs describe the progress made so far[557]:

- Dinder National Park (DNP) was a registered Ramsar Wetland with more than forty wetlands significant to migratory waterfowls;
- Radoum National Park (RNP) was listed under the Ramsar Convention;[558]
- Steps are far advanced to declare the Dams of Roserries, Sennar, Jebel Aulia as wetlands of international significance in addition to Lake Nubia, Lake Kundi and ,Lake Abyad.
- Khartoum Forest was declared as Bird Sanctuary since 1939.

In terms of Conservation of Areas to enhance the resilience of migratory species and their habitats to climate change, in attempts to reduce other threats in the conservation or proliferation population size and genetic diversity, Sudan carried out an assessment of the present and future implications of climate change for protected areas and other sites important for waterbirds (i.e. migratory

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Migratory Waterbirds (AEWA): National Reports UNEP/AEWA/Nat. Report/MOP6/Sudan. 2015: 28 (UNEP/AEWA/Sudan 2015).

[553] (UNEP/AEWA/Sudan 2015).

[554] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995, UKTS. 2003 No. 13. Article III(g).

[555] Convention on International Trade in Endangered Species of Wild Fauna and Flora, March 3rd, 1973, 993 UNTS 243; 27 UST 1087; TIAS 8249.

[556] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995, UKTS. 2003 No. 13.Annex 3, para. 3.1.2.

[557] (UNEP/AEWA/Sudan 2015).: 30.

[558] The Convention on Wetlands of International importance especially as Waterfowl Habitat (Ramsar Convention), 2nd February, 1971. 996 UNTS 245; TIAS 11084; 11 ILM 963 (1972). (Ramsar Convention 1971).

species and their habitats to climate change) (Resolution 5.13[559]) for one or single sites: For example, during the extreme drought events across the Dinder National Park in 2010, a couple of wells were constructed and well water was drawn by pumps as most accessible and adequate supply of water to migratory birds and mammals. In addition, in collaboration with Sudan Civil Defense forces water was conveyed and dispensed by water hauling trucks to dry water pools for irrigation of the area affected by devastating drought. As per management plan of the Park the water storage capacity was improved for various water pools.[560]

As reported in the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA): National Reports[561] although there are ongoing discussions and meetings focused on quest for a comprehensive and coherent protected and managed sites of international and national significance for waterbirds, It added that, Sudan has experienced delays in development of its action plan because the Interim Constitution 2005 has since 2011 not been amended. Biodiversity policy has not yet been completed or implemented.[562] Sudan has not yet developed a national action plan for addressing gaps in designation and/or management of internationally and nationally important sites for waterbird populations as spelt out in Resolution 5.2.[563] Owing to lack of technical know-how, Sudan has failed to access the Critical Site Network (CSN) Tool internet portal for the AEWA area.[564] This tool is meant for providing general guidance in addition to concise, mapped summaries of waterbird

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[559] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995. May 18, 2012, UNEP/AEWA/MOP5Res. 5.13. 5th Session of the Meeting of the Parties to AEWA.

See also: Agreement on the Conservation of African-Eurasian Migratory Waterbirds 5th Session of the Meeting of the Parties (MOP 5), 14 – 18 May 2012, La Rochelle, France. Resolution 5.13 ("Climate change adaptation measures for waterbirds").

[560] UNEP/AEWA/Sudan 2015:30.

[561] UNEP/AEWA/Sudan 2015:31.

[562] ibid.

[563]Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995. May 18, 2012, UNEP/AEWA/MOP5Res. 5.2. 5th Session of the Meeting of the Parties to AEWA.

See also: Agreement on the Conservation of African-Eurasian Migratory Waterbirds Resolution 5.2. (Doc StC Inf. 9.1 Agenda item 8 26.07.2013), 9th Meeting of the Standing Committee, 18 - 19 September 2013, Trondheim, Norway (Secretariat provided by the United Nations Environment Programme (UNEP)).

[564]UNEP/AEWA/Sudan 2015:32.

ranges.[565]

According to the report,[566] in terms of illegal taking, the Sudan has measures to reduce/eliminate illegal taking (AEWA Action Plan, paragraph 4.1.6[567]). Strategies adopted include: anti- poaching unit; check points at the entrances of or on the gates of cities. Concerning the adequacy of the measures, UNEP/AEWA/Sudan[568] reported moderate measures. It is understood that illegal takes originate from officers in high positions who own four wheel drive vehicles, especially in remote areas.[569]

The country has not undertaken steps to adopt and apply measures in the context of Regional Fisheries Management Organisations (RFMOs) in reducing the incidental catch of seabirds and combat Illegal Unregulated and Unreported (IUU) fishing practices in the Agreement area as spelt out in Resolution 3.8,[570] due to:

- Lack of coordination amongst wildlife and sea fisheries after Senganieb marine National Park and Dungonab marine National Park in the Red Sea, were updated.
- The advancement of management Plans of Marine National parks and improvement of awareness of fishermen and local communities about significance of sea birds.

With regard to research and monitoring, it is reported[571] that Sudan lacks waterbird monitoring schemes for the AEWA migratory waterbird species and their habitats schemes for the AEWA species in place (Strategic Plan 2009-2017,

[565] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995, UKTS. 2003 No. 13.Page 38.

[566] UNEP/AEWA/Sudan 2015:33.

[567] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995, UKTS. 2003 No. 13. Annex, para. 4.1.6.

[568] UNEP/AEWA/Sudan 2015:33.

[569] ibid.

[570] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995. October 27, 2012, UNEP/AEWA/MOP5Res. 3.8. 3rd Session of the Meeting of the Parties to AEWA.

[571] UNEP/AEWA/Sudan. Convention on the Conservation of Migratory Species of Wild Animals (CMS) instrument: The Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA): National Reports UNEP/AEWA/Nat. Report/MOP6/Sudan. 2015. (UNEP/AEWA/Sudan 2015).

Objective 3, Target 3.2)[572]. AEWA Strategic Plan 2009 -2017, Objective 3 calls for increasing:

> "knowledge about species and their populations, flyways and threats to them as a basis for conservation action …"[573]

In order to facilitate an appropriate research and monitoring, AEWA Strategic Plan 2009 -2017 Target 3.2 has been formulated and it states:

> "Capacity of national monitoring systems to assess the status of the waterbirds is established, maintained and further developed."[574]

This being the case, in the Sudan, Waterbirds Strategy 2009-2017 did not receive enough attention for an effective implementation of the Agreement, due to the absence of wildlife policy till now. Secondly the present legislation of Sudan Government's Wildlife Conservation and Federal Parks Act 1986 needs to be updated to possibly spell out the duty of the government to implement the Convention on the Conservation of Migratory Species of Wild Animals (CMS),[575] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, (AEWA) 2012,[576] Wetlands, Raptors as was the situation with Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973[577] which appears in the national legislation presently. A water bird census is conducted annually under the frame work of waterbirds

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[572] Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) Strategic Plan 2009-2017 (AEWA/MOP 6.12), 6th Session of the Meeting of the Parties to AEWA (9-14 November 2015, Bonn, Germany).

[573] Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) Strategic Plan 2009-2017 (AEWA/MOP 6.6.3), 6th Session of the Meeting of the Parties to AEWA (9-14 November 2015, Bonn, Germany).

[574] Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) Strategic Plan 2009-2017 (AEWA/MOP 6.6.3), Objective 3, Target 3.2

[575] Convention on the Conservation of Migratory Species of Wild Animals *(*Bonn, 23 June 1979*),*1651 UNTS 355*.*

[576] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995. October 27, 2012, UNEP/AEWA/MOP5Res. 3.8. 3rd Session of the Meeting of the Parties to AEWA.

[577] Convention on International Trade in Endangered Species of Wild Fauna and Flora, March 3rd, 1973, 993 UNTS 243; 27 UST 1087; TIAS 8249.

programme, in collaboration with French Ministry of Environment. The lack of annual budget for waterbirds surveys is a major obstacle.[578]

According to the Sudan's National Report of Agreement on the Conservation of African-Eurasian Migratory Waterbirds,[579] the nation is resolved to propose advancing further connections between the biodiversity MEAs to which the nation is a Contracting Party, in order to make its work more productive and successful via training Wildlife Officers in Naivasha, Kenya and Mweka Tanzania and in addition, Republic of South Africa. This report also calls on the Sudan to renew its current 1986 legislation to implement AEWA, Wetlands, CMS. There are currently relevant climate change research, assessments and/or adaptation measures that are significant to migratory waterbirds and which have been carried out or planned in the Sudan (Resolution 5.13).[580] Severe drought sometimes forces local people living around the Dinder National Park in the Sudan, to abastain from staples and rely on hunting from millions of Guinea fowls inside the park. Local people employ varying hunting patterns to adapt to different environmental changes.

These patterns include: poisoning water pools thus harming and killing indiscriminately mammals, birds and fish.[581] It is also documented that local people sometimes use bark of certain tree species to poison waterbirds[582]. In the Management Plan of the Dinder National Park, directives were given to examine potential climate change mitigation measures and response strategies. In search of food during periods of drought, herders enter into the park and are in competition with wild animals for, water shades and fodder; thus research are planned to assess how local people respond to Climate change.[583]

In the Sudan, the conversion of natural ecosystem habitats – forests, savannas, grasslands and wetlands to agriculture, uncontrolled logging, poor land management, and urbanization or urban sprawl have all attributed to the loss and degradation of habitat of wildlife species. In addition, vague wildlife policy and inadequate public awareness raising, and education led to habitat destruction and fragmentation, over-cultivation of land through large scale mechanized agricultural farms, irrigation schemes and utilization in international trade;

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[578] UNEP/AEWA/Sudan 2015:38.

[579] UNEP/AEWA/Sudan 2015:40

[580] Agreement on the Conservation of African-Eurasian Migratory Waterbirds, 16 June 1995. May 18, 2012, UNEP/AEWA/MOP5Res. 5.13. 5th Session of the Meeting of the Parties to AEWA.

[581] UNEP/AEWA/Sudan 2015:43.

[582] ibid.

[583] ibid.

disease and predation; weak institutional arrangements coupled with the inadequacy and implementation of the existing regulatory mechanisms led to biodiversity loss.

Besides, the populations of Sudan's white and black rhino, zebra, several antelope species, lion, and leopard, and other animal species have declined considerably. The wooded highlands of the Nuba mountains traditionally held wildlife populations at a large scale but inadequacy and implementation of the existing regulatory mechanisms coupled with civil war have been responsible for the huge decline of wildlife species**.**

Sudan became Party to the *Vienna convention for the protection of the ozone layer, Vienna (1985)*,[584] to address the problem of the depletion of the ozone layer. Sudan ratified this international convention on 29th January, 1993. The Vienna Convention for the Protection of the Ozone Layer (1985) (Vienna Convention)[585] adopted in Vienna at the Vienna Conference of 1985, entered into force in 1988. The main purpose of its negotiation was to protect environment and thus human health against harmful effects of human activity which have the potential to change or could change the ozone layer.

It set up worldwide monitoring and reporting on ozone depletion. It likewise made a framework for the advancement of protocols to take more binding action. It laid down the fundamental principles and structure of the regime, providing a coordinated international effort to research the causes of the ozone layer depletion, observe, protect and exchange information on the impacts of anthropogenic activities on the ozone layer.

However, this Convention requests individual countries to tackle their own limits of production or use of Chlorofluorocarbons (CFS). The whole issue of legally binding reduction goals for the use of Chlorofluorocarbons (CFS), the main chemical agents causing ozone depletion, has been excluded. However, these excluded issues have been defined in the supplementary Montreal Protocol.[586] It is worth mentioning that both the Vienna Convention on the

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[584] Convention for the protection of the Ozone layer, Vienna (Vienna Convention), 22nd March, 1985. TIAS No. 11,097; 1513 UNTS 323; 26 ILM 1529 (1987).

[585] Convention for the protection of the Ozone layer, Vienna (Vienna Convention), 22nd March, 1985. TIAS No. 11,097; 1513 UNTS 323; 26 ILM 1529 (1987).

[586] Montreal Protocol on Substances that Deplete the Ozone layer (Montreal Protocol), 16th September 1987. 1522 UNTS 3; 26 ILM 1550 (1987)

See also: Montreal Protocol on Substances that Deplete the Ozone layer (Montreal Protocol), 16th September 1987. Concluded in Montreal, Canada on 16th September, 1987; entered into force on 1st January, 1987. Available at:

Protection of the ozone layer and the Montreal Protocol on Substances that Deplete the Ozone layer[587] are the first international agreements of any kind in the history of mankind to tackle the depletion of stratospheric ozone, a truly worldwide crisis.[588] In this view, they contributed a great deal in the adoption of the United Nations Framework Convention on Climate Change.. Sudan became Party to the *Vienna convention for the protection of the ozone layer, Vienna (1985).* Sudan ratified the Montreal protocol on substances that deplete Ozone layer, in 1993.

Firm commitments satisfying the objectives set in the Vienna convention for the protection of the ozone layer (1985),[589] are determined through the Montreal Protocol on Substances that Deplete the Ozone Layer (1987).[590] The Montreal Protocol on Substances that Deplete the Ozone Layer (1987) (the Protocol) under the Vienna convention for the protection of the ozone layer (1985), was agreed in 1987. The Protocol aims at taking and implementing global measures in protecting human health and the environment against adverse effects that result or likely to result from anthropogenic factors which modify or are likely to modify the ozone layer. It contributes in eliminating production and utilization of almost 100 regulated ozone depleting substances (ODS).

The Montreal Protocol to the Vienna Convention for the Protection of the Ozone Layer[591] is an international treaty which identified a series of substances: Freons [fluorocarbons and chlorofluorocarbons (CFCs)] and halons, and formation and utilization of methyl bromide, believed to be responsible for ozone layer depletion and mandated their gradual phasing-out and thereby protecting the ozone layer. The active substances concerned exhibit abnormal

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http://www.unep.org/OZONE/pdfs/Montreal-Protocol2000.pdf [Accessed: 25th November, 2014].

[587] ibid.

[588] The ozone layer protects the earth and its inhabitants from harmful doses of ultraviolet light.

[589] Convention for the protection of the Ozone layer, Vienna (Vienna Convention), 22nd March, 1985. TIAS No. 11,097; 1513 UNTS 323; 26 ILM 1529 (1987).

[590] Montreal Protocol on Substances that Deplete the Ozone layer (Montreal Protocol), 16th September 1987. 1522 UNTS 3; 26 ILM 1550 (1987).

[591] Convention for the protection of the Ozone layer, Vienna (Vienna Convention), 22nd March, 1985. TIAS No. 11,097; 1513 UNTS 323; 26 ILM 1529 (1987).

See also: Convention for the protection of the Ozone layer, Vienna (Vienna Convention), 22nd March, 1985. Adopted in Vienna, Austria on 22nd March, 1985; entered into force on 22nd September, 1988. Available at:
http://www.unep.ch/ozone/pdfs/viennaconvention2002.pdf [Accessed: 14th November, 2014].

stability which allow them to enter upper atmosphere layers where they debilitate the ozone layer which protects the Earth from the ultraviolet (UV) radiation. The Protocol facilitates global cooperation in reversing the rapid decline in atmospheric concentrations of ozone: a gas that shields life on Earth from the sun's harmful effects from exposure to UV radiation. Under the protocol countries consented to eliminate the creation and utilization of specific chemicals that deplete ozone. Eliminate of these substances is required by particular due dates.

This treaty (Montreal Protocol)[592] was opened for signature on 16th September, 1987, and entered into force on 1st January, 1989. In May 1989, a first (follow up) meeting was held in Helsinki. It has since evolved to address new challenges emerging from evolving scientific knowledge, the identification of new ozone-depleting substances (ODS), and transforming international political and economic realities. The protocol has since been further strengthened through seven amendments: in 1990 (London), 1991 (Nairobi), 1992 (Copenhagen), 1993 (Bangkok), 1995 (Vienna), 1997 (Montreal), and 1999 (Beijing). It is assumed that, the ozone layer would recover by 2050 on condition that the international agreement is followed.[593] This protocol offered considerable content to the institutional framework established by the Vienna Convention.

The Montreal Protocol is viewed as the single most successful environmental agreement to date; having eliminated 98% of ODS.[594] The Montreal Protocol is acclaimed the center-piece of the international regime for the protection of the stratospheric ozone, because it preserves the fundamental principles states should adhere to in order to mitigate ozone depletion, and sets up its pivotal structures and procedures.[595] Owing to its extensive adoption and

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[592] Montreal Protocol on Substances that Deplete the Ozone layer (Montreal Protocol), 16th September 1987. 1522 UNTS 3; 26 ILM 1550 (1987).

[593] Speth, James G. 2004. *Red Sky at Morning: America and the Crisis of the Global Environment* New Haven: Yale University Press, pp 95.

[594] United Nations Environment Programme (UNEP), Report of the Twenty-Eighth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Kigali, 10–15 October 2016, U.N. Doc. UNEP/OzL.Pro.28/12, Annex I (Nov. 15, 2016),

[595] Romano, Cesare P. R. Conventions, Treaties and other responses to Global issues, Vol. II: Ozone Layer Depletion. Center on International Cooperation, New York University, USA. 2013. Available at: http://www.eolss.net/sample-chapters/c14/e1-44-02-10.pdf [Accessed: November 4, 2013]. (Romano 2009)..

implementation, it has been exemplified as unique international co-operation, with Kofi Annan (former UN Secretary General) quoted as saying that:

> perhaps the single most successful international agreement to date has been the Montreal Protocol[596]

Both the Vienna convention for the protection of the ozone layer (1985) and the Montreal Protocol on Substances that Deplete the Ozone Layer (1987) have been ratified by 197 states and the European Union[597] making them the most widely ratified treaties in United Nations history.[598] The protocol indicated the regulations that should be adopted by the parties in phasing out the ODS.

The Montreal Protocol on Substances that Deplete the Ozone Layer (1987)[599] was ratified by the Sudan in 1993. Nearly every developing country that is Party to the Montreal Protocol has a National Ozone Unit supported by the Multilateral Fund for the Implementation of the Montreal Protocol (the Multilateral Fund)[600] Sudan conducted the following projects with financial support from the Montreal Trust Fund:

- Surveys and accumulation of information in the Halogens and Methyl Bromide sectors
- Implement and manage investment projects that deal with sectors such as refrigeration and Aerosols.
- Campaigns to raise awareness of the public through the media, workshops and exhibition in the different states of the Sudan.

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[596]"The Ozone Hole-The Montreal Protocol on Substances that Deplete the Ozone Layer." Available at: http://www.theozonehole.com/montreal.htm [Accessed on November 11, 2013].

[597] Status of Ratification- The Ozone Secretariat." Available at: http://ozone.unep.org/new_site/en/treaty_ratification_status.php [Accessed on November 11, 2013].

[598] UNEP press release: "South Sudan joins Montreal Protocol and commits to phasing out Ozone-Damaging Substances." Available at: http://ozone.unep.org/new_site/en/treaty_ratification_status.php [Accessed on November 11, 2013].

[599] Montreal Protocol on Substances that Deplete the Ozone layer (Montreal Protocol), 16th September 1987. 1522 UNTS 3; 26 ILM 1550 (1987).

[600] United Nations Environment Programme (UNEP), Report of the Twenty-Eighth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Kigali, 10–15 October 2016, U.N. Doc. UNEP/OzL.Pro.28/12, Annex I (Nov. 15, 2016),

- Reducing the atmospheric abundance of ozone - depleting substances (ODS) from 602 tons in 1991 to about 200 tons in the year 2005.

Sudan, alongside about 200 different nations, adopted an amendment to the Montreal Protocol in October 2016 to phase down hydrofluorocarbons (HFCs) around the world. HFCs can have global-warming potentials of up to 14,800 times that of carbon dioxide. The phase down of HFCs therefore has potential to play a critical role in mitigating climate change.[601]

The Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer is an essential headway in worldwide cooperation to combat climate change. The integration of HFCs into the Montreal Protocol creates chances for the international community to curb the potentially harmful impacts of a common, yet potent greenhouse gas emitter (chemical).[602] With reference to the Kigali Amendment to the Montreal Protocol: At the nineteenth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer,[603] another timetable for the elimination of hydro chlorofluorocarbons (HCFCs) was adopted and developing nations are dedicated to reduce and eventually eliminate the production and utilization of HCFCs by 35% in 2020, 67.7% in 2025 and 100% in 2030.[604]

Parties with high ambient temperature conditions where appropriate choices do not exist for the particular sub-sector of utilization are excluded from the HFC

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601 United Nations Environment Programme (UNEP), Report of the Twenty-Eighth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Kigali, 10–15 October 2016, U.N. Doc. UNEP/OzL.Pro.28/12, Annex I (Nov. 15, 2016),

602 Under the agreement reached by the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer at their 28th Meeting of the Parties on 15th October, 2016 in Kigali, Rwanda, the Parties adopted an amendment to phase – down hydrofluorocarbons (HFCs). HFCs are normally considered other options to ODS. Though HFCs are not ODS, they are described as greenhouse gases which can have high or very high global warming potentials (GWPs). They are known for having a 100-year GWP range that lies between 124 and 14,800 CO2 equivalence ($CO_{2\ e)}$ and atmospheric lifetimes ranging from 1.4 to 270 years [United Nations Environment Programme (UNEP), Report of the Twenty-Eighth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Kigali, 10–15 October 2016, U.N. Doc. UNEP/OzL.Pro.28/12, Annex I (Nov. 15, 2016)].

603 United Nations Environment Programme. Report of the Nineteenth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, 21st September, 2007. UNEP/OzL.Pro.19/7Decision XIX/21.

604 ibid.

Phase-down.[605] This exclusion considers a postponement in the HFC freeze date and initial control commitments by an initial duration of four years. The exclusion is applicable to the following Parties, including the Sudan:[606]

> "Algeria, Bahrain, Benin, Burkina Faso, Central African Republic, Chad, Cote d'Ivoire, Djibouti, Egypt, Eritrea, Gambia, Ghana, Guinea, Guinea- Bissau, Iran, Iraq, Jordan, Kuwait, Libya, Mali, Mauritania, Niger, Nigeria, Oman, Pakistan, Qatar, Saudi Arabia, Senegal, Sudan, Syria, Togo, Tunisia, Turkmenistan and United Arab Emirates."[607]

The HFC Phase-Down applies to the following equipment:

> "Multi-split type air conditioners (used for commercial and residential buildings); split ducted type air conditioners (for residential and commercial use) and ducted commercial packaged (self- contained) air conditioners."[608]

The Nile Basin Initiative (NBI), Tanzania, 1999 is a regional initiative and partnership among the Nile riparian states that seeks to develop the river in a cooperative manner, encourage transboundary cooperation and sound management for Nile Basin, water-shed areas and biodiversity, share substantial socioeconomic benefits, and promote regional peace and security. Examples of a number of activities being implemented under this agreement are namely:

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[605] The HFC phase-down is a dynamic reduction process of HFCs measured in Carbon Dioxide equivalence (CO2e). It is accessible from the European Union (EU) market each year, beginning in 2015 and going through 2030 and beyond. Producers and importers are entitled to annual quotas of HFCs that are continuously decreased according to a reduction schedule (EUF – Gas Regulation Handbook: *Keeping Ahead of the Curve as Europes Down HFCs.* Environmental Investigation Agency. 2015:2. (EUF 2015).

[606] United Nations Environment Programme (UNEP), Report of the Twenty-Eighth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Kigali, 10–15 October 2016, U.N. Doc. UNEP/OzL.Pro.28/12, Annex I (Nov. 15, 2016),

[607] United Nations Environment Programme (UNEP), Report of the Twenty-Eighth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Kigali, 10–15 October 2016, U.N. Doc. UNEP/OzL.Pro.28/12, Annex I (Nov. 15, 2016),

[608]United Nations Environment Programme (UNEP), Report of the Twenty-Eighth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Kigali, 10–15 October 2016, U.N. Doc. UNEP/OzL.Pro.28/12, Annex I (Nov. 15, 2016).

transboundary cooperation between Dinder National Park and Al Atesh Park (Sudan-Ethiopia) and wetlands management. The NBI environmental programme is situated in the Sudan with the Higher Council of Environment and Natural Resources (HCENR) being the focal point for national activities.

Another significant convention that deals with ecosystems in the context of natural resources is the *Convention on Wetlands of International importance especially as Waterfowl Habitat (or Ramsar Convention) 1971.*[609] Sudan ratified the convention in 2005. The Ramsar Convention[610] treaty was adopted in the Iranian city of Ramsar on 2nd February, 1971 and amended by the Protocol on 3rd December, 1982 and later on 28th May, 1987. It is described as the only global environmental treaty that addresses a particular ecosystem. It is noted that member countries of this convention cover all geographic regions of the globe. Sudan submitted all relevant documentation to join the Convention by 9th November, 2004. It was signed by the President and entered into force as partner on 7th May, 2005.

The Convention describes the varieties of wetlands covered in its work as lakes and rivers, swamps and marshes, wet grasslands and peatlands, oases, estuaries, deltas and tidal flats, near-shore marine areas, mangroves and coral reefs, and human-made sites such as fish ponds, rice paddies, reservoirs, and salt pans.

Wetlands are defined in Article 1(1) of the Convention on Wetlands of International Importance especially as Waterfowl Habitat[611]:

> "… areas of marsh, fen,peatland or water, whether natural or artificial, permanent or temporary,with water that is static or flowing, fresh, brackish or salt, includingareas of marine water the depth of which at low tide does not exceed six metres."[612]

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[609] The Convention on Wetlands of International importance especially as Waterfowl Habitat (Ramsar Convention), 2nd February, 1971. 996 UNTS 245; TIAS 11084; 11 ILM 963 (1972). (Ramsar Convention 1971).
See also: The Convention on Wetlands of International importance especially as Waterfowl Habitat (Ramsar Convention), 2nd February, 1971. Concluded 2nd February, 1971; entered into force on 21st December, 1975. Available at:
http://sedac.ciesin.org/entri/texts/ramsar.wetlands.waterfowl.habitat.1971.html
[Accessed: 27th November, 2014].

[610] ibid.

[611] Ramsar Convention 1971.

[612] Ramsar Convention 1971.

Pursuant to section 2 of the Convention on Wetlands of International Importance especially as Waterfowl Habitat, 1971, Article 1 (2),[613] waterfowls are broadly defined as:

> "… birds ecologically dependent on wetlands."[614]

In pursuance of Article 2 (1) of the Ramsar Convention, 1971:

Each Contracting Party shall designate suitable wetlands within its territory for inclusion in a List of Wetlands of International Importance, hereinafter referred to as "the List" which is maintained by the bureau established under Article 8. The boundaries of each wetland shall be precisely described and also delimited on a map and they may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands, especially where these have importance as waterfowl habitat.615

In pursuance of Article 3 (1) of the Ramsar Convention, 1971:

> "The Contracting Parties shall formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and as far as possible the wise use of wetlands in their territory.".[616]

According to the National Reports submitted to the 9th Meeting of the Contracting Parties of Ramsar,[617] it was reported that the wetlands ecosystems in Sudan have under gone severe ecological degradation with potentially significant adverse effects on biodiversity. This report mentioned civil war, inadequate planning, poor land use policies, ineffective management, law enforcement and a lack of understanding of the role of economic value of wetlands as some of the factors influencing this degradation. Wetland conservation and management is noted as most significant intervention in terms of impacts on ecological quality for the future of Sudan. The Nile Basin Initiative (NBI) project is an example of on- going projects in the Sudan considering this issue of integrating wise use into Sustainable Development –in Dinder Ramsar site.

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[613] Ramsar Convention 1971; Art. 1(2) (Ramsar Convention 1971).
[614] Ramsar Convention 1971; Art. 1(2) . (Ramsar Convention 1971).
[615] Ramsar Convention 1971; Article **2** (1) (Ramsar Convention 1971).
[616] Ramsar Convention 1971; Article 3 (1) (Ramsar Convention 1971).
[617] Sudan Report for the 9th COP Meeting of the Ramsar 2002.

Sudan being a contracting party to the Ramsa Convention, has gained support from the Ramsar Convention and World Wildlife Fund (Living Water Programme) to work on a range of issues in support of Ramsar Convention. Sudan worked in the preparation of the Ramsar Information Sheets for four nominated sites, namely: Dinder National Park,[618] Sunt Forest Reserve, the Mangroves and coral reef site on the Sudanese Red Sea Coast and Sudd region. Dinder National Park supporting rich natural resources in terms of biodiversity was enlisted as a Ramsar site when Sudan considered as a partner on 7th May, 2005, and Sudd region on 5th June, 2006.

(iii) United Nations Convention on Environment and Development and some related agreements

The Sudan embarked on a considerable number of United Nations initiatives that seek to address environmental protection, and development n the context of sustainable forest management. The following paragraphs explain a few of these initiatives:

The United Nations Framework Convention on Climate Change (UNFCCC), Rio de Janeiro (1992). Ratified 1993. Sudan signed the UNFCCC on 9th June 1992 and ratified it on 19th November, 1993. The United Nations Framework Convention on Climate Change (UNFCCC) 1992 sets an overall framework for intergovernmental efforts to address issues posed by climate change. It considers measures relating to the adaptation of forests to climate change conditions. It is not directly dealing with forests but is concerned with natural ecosystems. It recognises the vital role in terrestrial ecosystems of sinks and reservoirs of greenhouse gases of which forest ecosystem is an immense carbon sink. It recognizes an emerging need to evaluate the impacts of climate change on forest ecosystems and to develop measures to adapt to these impacts. It tackles not only mitigation measures (reduction of greenhouse gases) but also adaptation measures (adaptation of forests to a climate change).

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[618] Dinder National Park is a national park and biosphere reserve in eastern Sudan, on the Sudanese border with Ethiopia. Dinder lies approximately 400 kilometers southeast of Khartoum, on either side of the Dinder River bounded to the north by the Rahad River (Van Hoven, Woulter and Nimir, Mutasim B. Recovering from conflict: the case of Dinder and other national parks in Sudan. In: Goriup, P. *Parks* (Gland, Switzerland: World Commission on Protected Areas) 2004. (van Hoven & Nimir 2004).

It recognizes that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. As Article 2 of UNFCCC 1992 stipulates:

> "The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner"[619]

Certification is considered as one of the tools to promote the sustainability of forest management and allow consumers to discriminate positively in support of wood products originating from sustainably managed forests. So far, certification has developed as a private-sector, market-based tool, with limited regulatory intervention by public authorities.

Another international agreement dealing with forests within the context of natural resources, environment conservation and development is the *Convention on Biological Diversity (CBD), Rio de Janeiro, 1992.* Sudan signed the Convention on Biological Diversity (CBD) on 9th June 1992 and ratified it on 30th October, 1995.The issue of the earth's diminishing biodiversity was one of the main topics discussed at the "United Nations Conference on Environment and Development (UNCED) or Earth Summit in Rio de Janeiro"[620] from June 3 to June 14, 1992; and culminated in the adoption of the Convention on Biological Diversity (CBD).

Sudan is a signatory to the Rio Declaration and has already adopted the principle of sustainable development in its policies, strategies and programmes.

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[619] UN General Assembly, United Nations Framework Convention on Climate Change : resolution / adopted by the General Assembly, 20 January 1994, A/RES/48/189; *See also:* http://www.refworld.org/docid/3b00f2770.html [Accessed: 14th June, 2012] (UNFCCC 1992).

[620] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 142. (CBD 1992). Convention on Biological Diversity (Biodiversity Conversion), 5th June, 1992. Adopted during the Earth Summit in Rio de Janeiro on th June, 1992; entered into force on 29th December, 1993. *See also:* Document available at: http://www.cbd.int/convention/text [Accessed: 25th November, 2014].

The Comprehensive National Strategy of the Sudan (earlier discussed) stressed the allocation of 25% of the total area of the country for forestry, range and wildlife, and also emphasized the preparation of Environmental Impact Assessment for actions that are capable of inducing major environmental changes. Impact assessments are also indispensable tools to prevent harmful or unwanted natural resource development being held out by the relevant actors in a specific task, such as government agencies, development authorities and companies. General social and environmental impact assessments may not be enough to expose certain harms encountered by minorities and indigenous peoples related to matters such as discrimination, cultural life or customary rights to natural resources including land.

A minority and indigenous rights element should therefore be incorporated in impact assessments. These components should find their way in all-natural resource development plans should also incorporate an appraisal of impacts on the complete presentation of human rights of affected communities. It is significant to consider differential social impacts resource development on the basis of gender, age and disability. Open access to information on impact assessments should be easy, timely and user-friendly for affected communities; including translation or other methods of communication, such as images, signs and actions as needed.[621]

The concepts of multiple use of forests and public participation are highlighted in the forest policy and legislation. According to its text, the CBD is dedicated to promoting sustainable development which is defined by the report "Our Common Future" of the Brundtland Commission[622] as:

> "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." [623]

The concept of sustainable development refers to objective which consists in trying to develop the economies of the world while at the same time protecting the environment for the benefit of all nations of the world and all future

[621] Corrine 2012:19.

[622] ibid.

[623] Our Common Future, Chapter 2: Towards Sustainable Development. Our Common Future: Report of the World Commission on Environment and Development (WCED). UN Documents: Gathering a Body of Global Agreements; A/42/427.
Also see: WCED 1987: 2-5.

generations of the world.[624] The Report of the World Commission on Environment and Development (WCED) (1987): "Our Common Future" [625] introduced the concept of sustainable development. The report of "Our Common Future" (1987),[626] observed these ideas and sought to develop a mechanism supporting them when dealing with humanity's ongoing and increasingly severe impacts on the Earth. The term sustainable development was coined as a guiding principle for the reconciliation of developmental and environmental needs. It sought to describe means by which humanity could learn to live sustainably within the Earth's resources, yet continue to develop its industries, economies and social structures to its own betterment. The Earth summit of 1992 endorsed this report, and the concept was used as a principle to guide future developments.[627]

Regarding it a practical tool for implementing the principles of Agenda 21 into reality, the Convention recognizes that biological diversity is about more than plants, animals and micro-organisms and their ecosystems; it is also about people and their need for food security, medicines, fresh air and water, shelter - in short, a clean and healthy human environment.[628] These emerging concerns

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[624] 'In other words, future generations should not be made to pay the bill for the activities of its ancestors' (Hollo, Erkki J., Glover, Edinam K., Forji Amin G. and Utter Robert. *Introduction to Principles of International Environmental Law,* Helsinki *(Unpubl.)*)2007:18. (Hollo et al. 2007).
Similar understanding of the term "sustainable development" can be found elsewhere (e.g. Boyle & Freestones 1999; Buck, Susan J. *Understanding Environmental Administration and Law,* Island Press, 1996 and Sand, Peter (ed.). *Greening International Law*, Earthscan Publications Ltd., London. 1993.

[625] World Commission on Environment and Development, Bruntland Commission. "Our common future." *Report of the world commission on environment and development* (1987); Report of the World Commission on Environment and Development: Our Common Future, 4 August 1987 (A/42/427, Annex). This report was conveyed to the General Assembly, in form of an Annex to document A/42/427 - Development and International Cooperation: Environment.

[626] United Nations 1987. Report of the World Commission on Environment and Development, General Assembly Resolution 42/187, 11 December, 1987. (United Nations 1987).

[627] Hollo et al. 2007:18.

[628] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 142. (CBD 1992).
See also: CBD (Convention on Biological Diversity): Convention text. [Available at: www.biodiv.org/convention/articles.shtml?a=cbd-00 . 1992. [Accessed: 15th December, 2012] ; See also United Nations, Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-4 June 1992, and Vol.1.

found clear expression in the establishment, in a number of countries, of departments and institutions of the environment and natural resources. Vested with legislation and funding they provide overviews and functions, environmental impact procedures, standard setting, monitoring, and training programmes.

Another convention dealing with forests in the context of natural resources is the *United Nations Convention to Combat Desertification (UNCCD) in countries experiencing serious drought and/or desertification particularly in Africa,*[629] *Paris, 1994.* Sudan signed the UNCCD on 15th 1995 and ratified it on 24th November, 1995.

Article 2(1) (Objective) of UNCCD 1994:[630] states that:

> "The objective of this Convention is to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa, through effective action at all levels, supported by international cooperation and partnership arrangements, in the framework of an integrated approach which is consistent with Agenda 21, with a view to contributing to the achievement of sustainable development in affected areas."[631]

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[629] United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa; 1954 UNTS 3; 33 ILM 1328 (1994); United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, (Paris) (Adopted on 17th June, 1994; entered into force on 26th December, 1996), United Nations, Treaty Series, vol. 1954, p. 3. (L83, 19/03/1998, p. 3); See also: http://www.unccd.int/en/about-the-convention/Pages/Text-overview.aspx [Accessed: 14th November, 2014].

[630] UNCCD. Intergovernmental Negotiating Committee for the Elaboration of an International Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa. Distr. GENERAL A/AC.241/27. 12 September 1994.

[631] United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa; 1954 UNTS 3; 33 ILM 1328 (1994), Article 2(1).; United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, (Paris) (Adopted on 17th June, 1994; entered into force on 26th December, 1996), United Nations, Treaty Series, vol. 1954, p. 3. (L83, 19/03/1998, p. 3); *See also*: http://www.unccd.int/en/about-the-convention/Pages/Text-overview.aspx [Accessed: 14th November, 2014].

The Sudan was one of the first countries to sign and ratify the United Nations Convention to Combat Desertification 1992.[632] The country signed the UNCCD on 15th October, 1995 and ratified it on 24th November, 1995. The way toward building up Sudan's desertification National Action Plan was not only based upon its commitments under the UNCCD, but also upon prior activities intending to address desertification from a simply domestic perspective. This requires the application of long term integrated systems that target enhancing land productivity and to rehabilitate, conserve and sustainable management of land and water resources resulting in restoration and conservation of natural resources and to enhanced living conditions, specifically, at the community level. The programmes must pay sufficient attention to dry areas and marginal lands. The UNCCD sets out the general commitments of all Parties, accentuating the need to coordinate efforts for long-term strategic planning at all levels. It is important for the Parties to prioritize activities in affected areas in the African country. The governments of countries affected by desertification, are committed to drawing up national action plans to combat it. The projects must ensure adequate attention is given to marginal dry land areas and consultation and genuine participation of local communities in the identification of priority issues and designing programme components such as integrated drought preparedness, mitigation and management.

With regard to the efforts to combat desertification, in 1977, Sudan produced a detailed document concerning its Desert Encroachment Control and Rehabilitation Programme, which was presented at the UN Conference on Desertification.[633] The National Drought and Desertification Control Unit (NDDCU) became the primary locus with a mandate to implement the UNCCD in the Sudan. It is to accept the coordination among various government organizations to guarantee that diverse ministries and sectors concur upon a joint strategy, in compliance with and in pursuant to articles 8, 9 and 10 of the UNCCD.[634]

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[632] United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa; 1954 UNTS 3; 33 ILM 1328 (1994).

[633] UNEP. The manual of, compliance with and enforcement of multilateral environmental agreements. UNEP. 2006.

[634] United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa; 1954 UNTS 3; 33 ILM 1328 (1994). Articles 8, 9 and 10.

With technical assistance from the EU in 1993, the NDDCU established a Geographic Information System (GIS) and undertook a thorough study of the extent of desertification. Sudan set up the National Desertification Control and Monitoring Unit (NDMU) which benefited from technical support provided by United Nations Development Programme/ United Nations Sudano-Sahelian Office (UNDP/UNSO). The UNDP/UNSO helped to facilitate a series of workshops on the subject of desertification. These workshops were held in five States of the Sudan. The country also benefited from technical support from the European Union in 1993, where NDDU set up a Geographic Information System (GIS) and carried out scientific research of the extent of desertification.

The establishment of a research station enabled the Sudan to measure the degree of desertification. It it was presumed that 50.5% of the zones latitudes 10° and 18° are inclined to desertification. The NDDCU likewise got financial support from UNDP/UNSO in 1997 to set up Sudan's National Action Plan (NAP) for monitoring and evaluation. Sudan has arranged its NAP and projects inside the context of SNAP and in accordance with the objectives of the UNCCD. A similar action was completed by the NGOs, National Coordinating Committee for Desertification (NCCD). After the forum, the NDDCU was rebuilt and renamed as the National Drought and Desertification Control Unit (NDDCU). The NDDCU and NCCD coordinated their endeavours, particularly in the area of awareness raising about the UNCCD.[635]

The Sudan initiated the process of developing the NAP on the UNCCD with the project entitled “Comprehensive Strategy and the Agricultural Sector Strategy (2007- 2025). The formulation of NAP process involved the use of a bottom-up approach. The NAP is responsible for providing accurate description and analysis supporting the state of desertification in the Sudan and proposes some actions to be adopted. It likewise proposes legislation establishing a National Council to Combat Desertification. It has a general secretariat at a federal level and councils at the state level. The secretariat has units for monitoring and coordination. In spite of the popular participation in its formulation, NAP identifies the principal challenges to addressing land degradation including the lack of cross-sectoral linkages and political will for its implementation. Since the NDDCU is found to provide a reliable technical support, it could be trusted in carrying out this tremendously important task. Its present situation must be seriously considered and given strong backing among the people.

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[635] UNEP. The manual of, compliance with and enforcement of multilateral environmental agreements. UNEP. 2006.

In spite of these endeavours, little achievement was accomplished owing to of many reasons; among them is absence of scientific research. Consequently, the National Center for Research chose in 1992 to build up a research station dedicated to research in desertification control. This station was located in El Rawakeeb, a typical decertified area located west of Khartoum. Important concerns that the convention seeks to address are summarized in Table 8.

Table 8. Priorities of the UNCCD[636], which apply to the Sudan context.

United Nations Convention to Combat Desertification (UNCCD) Article	Details[637]
Article 8	1) Promote coordinated programmes in area of research, training activities, systematic observation data, access to common data and information gathering and exchange.
Article 9	1) Preparation, publicizing and implementing national action programmes that use and build on prevailing important successful strategies and programmes as key instruments to implement UNCCD.
Article 10	1) Identification of the factors influencing desertification and practical steps needed to halt desertification and mitigate the impacts of drought in the affected areas through national action programmes. 2a) Integrate long-term strategies to halt desertification and mitigate the impacts of drought with special stress on implementation coupled with national policies for sustainable development 2c) Necessary to implement preventive steps against desertification at the early stages in the area, in order to avoid irreversible damage. 2d) Improving the knowledge of climatological, meteorological and hydrological processes and the means to provide for early warning systems for drought

[636] United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa; 1954 UNTS 3; 33 ILM 1328 (1994).

[637] United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa; 1954 UNTS 3; 33 ILM 1328 (1994).

2e) Promotion of sound policies and strengthening institutional frameworks at critical levels

Article 16: Information collection, analysis and exchange	a) Strengthening and facilitating the operation of the network of institutions with the aim to collect, analyse and exchange information b) Gather, analyse and exchange of information in order to address the felt needs of local communities and decision-makers c) Support bilateral and multilateral cooperation programmes, and projects that aim to collect, analyse and exchange of data and information including sets of physical, biological, social and economic indicators d) Dissemination of relevant information and experiences between target groups e) Support the gathering data analysis and exchange of socio-economic data and integration with physical and biological data f) Exchange information of relevance to combat desertification and mitigation of effects of drought. g) Exchange information relating to land and ensure its protection and providing for suitable return from benefits derived from its use.
Article 17: Research and Development	c) Protection, integration, improvement and validation of traditional and local knowledge and practices d) Development and strengthening of national research capabilities e) Taking into consideration, the relationship between poverty and migration due to environmental changes and in particular, desertification
Article 18: Transfer, Acquisition, adaptation and development of technology	b) Facilitate access to appropriate technologies in a practical and effective manner for specific needs of local populations, giving special consideration to the social, cultural, economic and environmental impact of such technology

	e) Adopt suitable measures to make domestic market conditions and incentives, fiscal or generally helpful to the development, transfer, acquisition and adaptation of suitable technology, knowledge, and practices including measures aimed at ensuring sufficient and effective protection of intellectual property rights. 2) At the national level, parties are encouraged to, as indicated by the capabilities and prevalent legislation and/or policies protect, foster the utilization of traditional and local technology, knowledge, know-how and practices.
Article 19: Capacity Building, Education and Public Awareness	a) Involving local people, particularly women, and youth in training and development in attempts to combat desertification and mitigate the effects of drought. b) Training and strengthening overall capacity of national institutions regarding desertification and drought. f) Training and Technology in the utilization of sustainable sources of energy e.g. renewable energy g) Strengthening capacity to collect, analyse and exchange scientific and technological data i) Training decision makers, managers, and personnel entrusted with the responsibility of collecting and analyzing data on food production and early warming of drought.

A study by the World Research Institute (WRI)[638] indicates that a contributing factor causing desertification in the Sudan is the fact that the country derives more than 75 % of its energy needs from fuelwood, which is estimated at around 22 million m³ per annum. Range fire, intentionally set by herders to enhance grazing every year, around 35% of the natural rangeland productivity, assessed to be around 300 million tons,[639] is an important factor contributing to Sudan's serious desertification problem.

Besides drought, other main causes of desertification in the Sudan include overgrazing (47%), poor farming practices (e.g. over-cultivation) (22%), deforestation (19%), and sustained overexploitation or overharvesting (13 %).[640] The above findings relate with the results obtained in a similar research conducted in the Sudan by the World Bank[641], which found that in the Kordofan, and Darfur areas of the Sudan, around 88,000 ha of forests and other natural habitats are converted every year for agricultural use. According to an estimate about 42,000 ha of land in these areas, is affected by monoculture or mono-cropping of sorghum continuously for three to four years, without rotating with other crops; rendering the fragile land degraded and barren and then abandoned. *United Nations Framework Convention on Climate Change (UNFCCC), Rio de Janeiro (1992):* Ratified 1993 is another convention that the signed on 9th June 1992, ratified it on 19th November, 1993 and entered into force on: 21st March 1994.

The United Nations Framework Convention on Climate Change (UNFCCC) 1992[642] sets an overall framework for intergovernmental efforts to address issues posed by climate change. It considers measures relating to the adaptation of forests to climate change conditions. It does not deal directly with forests but concerns itself with issues affecting natural ecosystems. It recognises the vital role in terrestrial ecosystems of sinks and reservoirs of greenhouse gases of which forest ecosystem is an immense carbon sink. It recognizes an emerging need to evaluate the impacts of climate change on forest ecosystems and to

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[638] World Research Institute (WRI). A guide to the global environment toward sustainable development: 1994-95. Oxford University Press, Oxford. 1994.

[639] Elmoula, Atta M. E. (ed.). On the problem of resource management in the Sudan. Monograph Series No. 4, Institute of Environmental Studies, University of Khartoum. 1985.

[640] Ayoub, Ali Taha. Extent, severity and causative factors of land degradation in the Sudan. *Journal of arid environment* 38: 397-409. 1998.

[641] World Research Institute (WRI). A guide to the global environment toward sustainable development: 1994-95. Oxford University Press, Oxford. 1994.

[642] United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992)

develop measures to adapt to these impacts. It tackles not only mitigation measures (reduction of greenhouse gases) but also adaptation measures (adaptation of forests to a climate change).

It recognizes that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. As Article 2 of UNFCCC 1992 stipulates:

> "The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.[643]

Certification is considered as one of the tools to promote the sustainability of forest management and allow consumers to discriminate positively in support of wood products originating from sustainably managed forests. So far, certification has developed as a private sector, market based tool, with limited regulatory intervention by public authorities.

As signatory to the UNFCCC[644] and its Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC)[645]. The Kyoto Protocol

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[643] United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992)

[644] United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992).

[645] The Kyoto Protocol to the United Nations Framework Convention on Climate Change (Kyoto Protocol), 11th December, 1997. UN Doc FCCC/CP/1997/7/Add.1, Dec. 10, 1997; 37 ILM 22 (1998);
The Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC)) (Kyoto Protocol), 11th December, 1997. Concluded in Kyoto, Japan on 11th December, 1997; entered into force on 16th February, 2005;
See also: Document available at:
http://unfccc.int/essential_background/kyoto_protocol/background/items/1351.php
The Kyoto Protocol is an environmental treaty with the goal of reducing greenhouse gas emissions in accordance with the terms defined in 1992 UNFCCC. The Kyoto Protocol sets forth specific limits on greenhouse gas emissions.

to the United Nations Framework Convention on Climate Change (UNFCCC)[646] was adopted in Kyoto in Japan on 11th December, 1997 and entered into force on 16th February, 2005. Sudan signed the Kyoto Protocol on 2nd November, 2004 with an entry into force on 18th February, 2005.It is a treaty which commits its parties by setting on industrialized countries internationally binding emission reduction targets of greenhouse gases. The protocol recognizes that developed countries are the main source of the current high levels of greenhouse gas emissions in the atmosphere. Thus, the protocol places a heavier liability on developed nations under the principle of "common differentiated responsibilities" as Article 10 of Kyoto Protocol[647]states:

> "All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, without introducing any new commitments for Parties not included in Annex I … to advance the implementation of these commitments in order to achieve sustainable development …"[648]

The Convention focuses on all greenhouse gases not covered by the Montreal Protocol with attention given to the following: Carbon dioxide, Methane, Nitrous Oxide, Hydrofluorocarbons, Perflourocarbons and Sulphur hexafluoride. In attempts to satisfy its obligations enshrined in the Convention, According to HCENR,[649] Sudan has implemented a range of policies and measures to ensure

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[646] The Kyoto Protocol to the United Nations Framework Convention on Climate Change (Kyoto Protocol), 11th December, 1997. UN Doc FCCC/CP/1997/7/Add.1, Dec. 10, 1997; 37 ILM 22 (1998).
See Also: The Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC)) (Kyoto Protocol), 11th December, 1997. Concluded in Kyoto, Japan on 11th December, 1997; entered into force on 16th February, 2005.
See also: Document available at:
http://unfccc.int/essential_background/kyoto_protocol/background/items/1351.php [Accessed: 25th November, 2014].

[647] The Kyoto Protocol to the United Nations Framework Convention on Climate Change (Kyoto Protocol), 11th December, 1997. UN Doc FCCC/CP/1997/7/Add.1, Dec. 10, 1997, Article 10.

[648] The Kyoto Protocol to the United Nations Framework Convention on Climate Change (Kyoto Protocol), 11th December, 1997. UN Doc FCCC/CP/1997/7/Add.1, Dec. 10, 1997, Article 10.

[649] HCENR 2013: iv

fulfilling its commitments as a non-Annex I Party to the UNFCCC 1992.[650] The country also plays an important role in participating in international cooperation and regional initiatives on climate change. The First National Communication, the National Adaptation Programme and the Second National Communication have helped in fulfilling its obligation and also helped in fulfilling its obligation and contributed in raising public awareness, establishing climate change institutions and strengthening and building capacity on climate change.[651] This enables the country to work in close coordination and cooperation with the international community to tackle climate change issues and challenges.[652]

Sudan has executed different arrangements and measures to satisfy its responsibilities as a non-Annex I Party to the UNFCCC 1992.[653] The nation additionally effectively takes part in universal collaboration and territorial environmental change activities. The First National Communication, the National Adaptation Program and the Second National Communication have satisfied its commitment as well as have raised open mindfulness, set up environmental change organizations and manufacture limit. This empowers the nation to work in close coordination and participation with the universal group to handle environmental change issues and difficulties

Table 9 describes issues related to articles 4, 5 and 6 of the UNFCCC 1992[654] such as: energy sector; agriculture; land use change and forestry and greenhouse gas mitigation (inventory of greenhouse gases (GHG) for the year 2000);[655] Research and systematic observation,[656] and Education, training and public awareness.[657]

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[650] United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992)

[651] HCENR 2013: iv.

[652] HCENR 2013:iv.

[653] United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992).

[654] United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992).

[655] UNFCCC 1992, Article 4 (Commitments)

[656] UNFCCC 1992, Article 5

[657] UNFCCC 1992, Article 6

Table 9. Information relevant to the implementation of the objectives of the United Nations Framework Convention on Climate Change 1992.[658]

United Nations Framework Convention on Climate Change (UNFCCC) Articles **Article 4 COMMITMENTS**	**Details**
Article 4(1)c Energy sector	**Sectoral overview** In the Sudan, the base year for the first inventory was in 1995 and noteworthy developments in the energy sector have since occurred in the Sudan. By and large, there exist only three types of energy that are combusted in the Sudan. These three types of energy are: biomass, electricity (i.e., fossil fuels and hydropower), and refined petroleum products. ***Biomass:*** Combined, fuelwood, charcoal, agricultural wastes and animal dung represents approximately 78% of total energy consumption. Households account for over 74% of total biomass (mostly in rural areas), followed by 16% in the service/commercial sector, and 10% in the industrial sector.[659]

[658] United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992).

Sources of data: The Fossil fuel data used for GHG inventory updating was derived from the Sudanese Petroleum Corporation and General Directorate for National Energy Affairs, Ministry of Energy and Mining (MEM), Sudan. Data used for Biomas assessment was gathered from the second national energy assessment report published in the year 2003. Hydro data was gathered from the National Electricity Corporation of Sudan (NEC). Collected data is considered to demonstrate high reliability (HCENR. Sudan's Second National Communication under the United Nations Framework Convention on Climate Change, Ministry of Environment, Forestry & Physical Development Higher Council for Environment and Natural Resources (HCENR), Republic of the Sudan. 2013). (HCENR 2013).

[659] HCENR. Sudan's Second National Communication under the United Nations Framework Convention on Climate Change, Ministry of Environment, Forestry & Physical Development Higher Council for Environment and Natural Resources (HCENR), Republic of the Sudan. 2013:16. (HCENR 2013).

	Electricity: Sources of power generation in the Sudan is through a combination of hydro stations and thermal stations that rely on diesel and residual fuel oil, Hydro and fossil fuels together represent around 8% of total energy consumed., Electricity production has since 1980 been growing at an increasing rate 6% annually, with thermal power generation increasing at approximately 6 times the rate of hydropower production.[660] ***Petroleum products:*** Gasoline, diesel, residual fuel oil, kerosene, and jet kerosene represent approximately 14% of total energy consumption. The utilization of petroleum products has altogether expanded since 2000 when the Khartoum Refinery started operations. The transport sector is the largest expending sector of petroleum products, followed by agriculture, services, industry and households.[661] ***Results:*** In comparison with general anthropogenic GHG emissions, the total 8,539Gg CO2e represents about 11% of total CO2e GHG emissions related to energy sector in 2000.[662]
Agriculture	In comparison with general anthropogenic GHG emissions, 57,611Gg CO2e represents about 74% of total CO2e GHG emissions related to agriculture in 2000.Most agriculture-related GHG emissions in 2000 came from the following emitting activity[663]: Enteric fermentation represents for around 68% of all CO2e emissions from the agriculture sector, Manure management represents for 32% of agricultural CO2e emissions.

[660] HCENR 2013: 16.
[661] HCENR 2013: 17
[662] HCENR 2013: 17
[663] HCENR 2013: 20.

	Every other classification (i.e. rice cultivation, prescribed savannah burning, and field burning of agricultural residues) are negligible in comparison, together representing around 0.3% of agricultural CO2e emissions. The high amounts of methane (CH_4) emissions related to enteric fermentation (1, 923 Gg) are caused by the substantial part that animals play in Sudan's economy, especially in rural areas. There were roughly 168 million domestic animals in 2000, all together producing over 35 million tonnes of manure. Methane emissions related to these animals are characterized by the following: • Cattle represent the major source of methane. Majority of the cattle population offer draft power and some milk under traditional farming systems. In fact, the traditional sector account for the overwhelming majority of these emissions, as the commercialized dairy sector is very small in comparison. • Emissions from sheep, goats and camels are low. Sheep demonstrate the most noteworthy or maximum emissions followed by goats, camels and finally donkeys. Mules, buffalo, and swine are typically not found in Sudan. Methane and nitrous oxide emissions from manure management are principally connected with cattle, about 50%. Normally, cattle manure management depends on dry parcel under range and paddock systems. With reference to the remaining 0.3% of agricultural emissions, field burning of agricultural residues represent the major share of around 96%. Rice production is exceptionally restricted: Only an area of 5238 hectares are cultivated representing 3% of remaining agricultural emissions. The rest of the remaining 1% of agricultural emissions is connected with (fire lines) burning of grassland savanna, a practice that is common in Sudan.
Land Use Change and Forestry (LUCF)	Land and forest resources play a considerable role as far as their economic value and support of local livelihoods are concerned. The forestry sector adds to around 12% of GDP, principally from yearly exports of gum Arabic, and offers various direct and indirect advantages, for example, environmental protection, soil improvement, employment opportunities for rural population, wood as fuel and building material.

	Sectoral overview[664] Land use and forestry features that are most important to the advancement of the GHG inventory are briefly discussed in the following paragraphs: • *Social value:* Sixty-six percent (66%) of the population lives in the rural areas where wood remains an important source of fuel for cooking and construction materials for buildings. Furthermore, forests are vital natural rangelands for grazing, for wildlife and for providing livelihoods, food and nutrition security. • *Encroachment:* Forests have been recording significant decline for the past decades mainly due to encroachment for agriculture, urbanization, and unsustainable wood fuel extraction. By the end of 1997, the total area of forest reserves measured only 8.3 million hectares, which was less than 17% of the target of 46.3 million hectares planned for in the Comprehensive National Strategy 1992–2002. • *Sustainable forestry:* The quest for addressing the decline in forest area has resulted in several sustainable forestry initiatives and in particular, the adoption of community-based forestry management practices and use of liquefied petroleum gas (LPG) as a substitute for firewood/charcoal (main fuels for households). These initiatives are expected to contribute meaningfully in protecting forest cover in the long-term. • *Industrial wood consumption:* The industrial sector accounting for less than 10% of Sudan's total wood consumption. Firewood at industrial/commercial facilities account for over 98% consumption with the remainder used by brick kilns, the lime industry, sawmills, and other wood-based industries in Sudan.

[664] HCENR 2013: 23.

	Results[665] With respect to general anthropogenic GHG emissions, the 9,392Gg CO_2e accounts for about 12% of total CO2e GHG emissions from LUCF in 2000. The conversion of forests and grasslands represents all CO_2e emissions associated with the LUCF sector. This is for the most part caused by deforestation and degradation of forests and rangelands related to unsustainable exploitation of biomass resources in rural areas. With regard to removal by sinks of carbon dioxide (CO_2), changes of forest area and other woody biomass stocks designated for management by FNC represent about 76% of all sequestered CO_2. An estimated surplus of 24% of carbon sequestration is due to cropland abandonment.
Article 4(2)a[666] **Greenhouse gas mitigation** Inventory of greenhouse gases (GHG) for the year 2000.	The total greenhouse gas (GHG) emissions registered in the year 2000 was 77,650 GgCO_2-equivalent (CO_2e). The breakdown of this total is as follows: Agriculture represents 57,611Gg, LUCF accounts for 9,392 Gg, energy represents 8,539Gg; waste accounts for 2,015Gg, and only 93Gg from industrial processes. Agriculture-related activities represented the prevailing segment of GHG emissions in 2000. Around 74% of all CO_2e emissions are related to enteric fermentation and management of manure.

[665] HCENR 2013: 24.

[666] United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992).

	Land Use Change and Forestry (LUCF) represents about 12% of all GHG emissions, for the most part from the conversion of forests and grasslands. Emissions from fossil fuel combustion in the energy sector form a small part, representing only 11% of total emissions. The rest 3% of total emissions are mainly connected with solid and wastewater management facilities while industrial processes represent less than 0.5% of total emissions.
Article 5 **RESEARCH AND SYSTEMATIC OBSERVATION**	**Climate Change Research and Systematic Observation:** This section highlights developments concerning research and systematic observation of the climate change in the Sudan. It emphasizes some of the prevailing/planned activities, gaps and any important steps adopted to implement the UNFCCC.[667] ***Institutions*** In terms of institutions, a number of governmental institutes and centers conduct research related to UNFCCC. The most important of these institutes include the Ministry of Science and Technology, which offers support for post- graduate fellowships for climate change. It is worth mentioning that while universities and research institutions control climate change research activity, such research tends to be quite incomplete and lacks a planned multidisciplinary approach that is necessary for climate change research.[668] ***Key research institution:*** The Agricultural Research Corporation (ARC) is the main research institute entrusted with the responsibility of building connection between climate change and environment/natural resources.[669]

[667] HCENR 2013: 75.
[668] HCENR 2013: 75.
[669] HCENR 2013: 76.

	Other institutions: The Wildlife Research Center conducts research in a number of related areas in climate change. These include wildlife ecology, biology, food habits, behavior, wildlife management, wildlife habitat, watershed management, diseases, and socio-economic studies. The most recent research was carried out in the Al Sabaloga Game reserve with the aim of assessing climatic conditions and trends in variability, and its impact on wildlife and their habitats.[670] With respect to systematic observation, the Sudan Meteorological Corporation (SMC) acts as the only institution in the country that is mandated. The SMC has engaged in developing systematic observation records for temperature and rainfall through its eight monitoring stations distributed across different ecological zones of the Sudan. ***Level of Participation*** Sudan partook in two recent global research initiatives with respect to climate change adaptation. The primary activity was the "Assessment of impacts and Adaptations to Climate Change Project (AIACC)." The research included various national and international researchers and was conducted under coordination of the HCENR. The other research activity was the "Community-Based Adaptation in Africa (CBAA)" project. Sudan was among the eight African countries taking part in a project coordinated by the SECS. Other related projects in the field of climate change research include collaboration between Lund University and the ARC in 2002. This project was based on "Ecosystems analysis and potential of carbon sequestration in the tree-grass savanna at El Demokeya Research Forest in North Kordofan." A new project called "Carbo-Africa" was later launched. This project is being supported by

[670] HCENR 2013: 77.

	the European Community. It aims at quantifying and predicting GHG in sub-Saharan Africa with the use of a multidisciplinary integrated approach[671]. ***Key gaps*** Several gaps exist in the Comprehensive National Strategy, which are directly or indirectly associated with climate change and in areas of meteorological, atmospheric and oceanographic research and observation. These gaps relate to objectives to protect and develop rural environment for sustainable development, rehabilitate/preserve ecosystems for sustainable and renewable energy resources, enhance environmental awareness among concerned groups, conduct oceanographic research for the Red Sea coastline.[672] The main limitations for conducting meteorological, atmospheric and oceanographic research is lack of resources, lack of a climate change data and database center, and insufficient training in the area of climate change. Other specific gaps and constraints are summarized in the bullets below.[673] • ***Weak policy integration:*** Climate change and UNFCCC ideas are not well incorporated in the national policy and planning systems. This lack of proper integration is attributed to limitations of the national management and data processing system. • ***Lacking data systems:*** There is absence of stable programmes/projects related to research and systematic observations in majority of the principal sectors that are affected directly by climate change and variability such as agriculture, forestry and energy.

[671] HCENR 2013: 77.
[672] HCENR 2013: 77.
[673] HCENR 2013: 78.

	• ***Weak legislative framework:*** There is a noteworthy absence of appropriate policies, regulations, and legislation, coupled with an effective enforcement regime. • ***Poor awareness:*** There is an absence of awareness at federal/state institutions, in combination with constrained ability in monitoring and evaluation of activities incorporated into the implementation of adaptation strategies and environmental management plans. • ***Inadequate technical capacity:*** There is a critical requirement for capacity building in the fields of information technology, networking, laboratory and field equipment for monitoring and evaluation. It is required to upgrade institutional capacities to address issues related to climate change, which calls for increasing awareness of policy-makers in matters concerning climate change, introducing suitable policies and regulations and reviewing institutional structures. Universities and research centers require support in mainstreaming climate change issues in their programmes. • ***Civil society organizations:*** The function of civil society organizations ought to be improved through training, capacity building and networking, and also government actions to make an empowering environment for more noteworthy inclusion of civil society organizations.
Article 6[674] **EDUCATION, TRAINING AND PUBLIC AWARENESS**	The paragraphs below describe public education, training, and awareness campaign within the major institutions in the Sudan. **1. Governmental agencies**

[674] United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992).

	There are several key governmental organizations that have been involved over the past several years with various types of education and training activities. These organizations are briefly summarized in the bullets below relative to how climate change issues are incorporated into their operational roles, key activities, and networking initiatives.[675] ***Higher Council for Environment and Natural Resources (HCENR), Sudan Meteorological Authority (SMA), Forest National Corporation (FNC), General Directorate for Planning and Agricultural Economics (GDPAE), National Ozone Unit (NOU) and General Directorate of Environment and Safety (GDES).*** **2. Academic institutions** Examples of key departments within tertiary institutions that have made progress in integrating climate change into core teaching and/or research activities are briefly summarized in the bullets below. ***Faculty of Forestry - University of Khartoum, Physics Department, Faculty of Science – Sudan University of Science and Technology and Institute of Environmental Studies.*** **2. Public awareness programmes** Public awareness activities have been implemented primarily by governmental institutions, NGO's, and the media.

[675] HCENR 2013: 68.

	3. Key constraints and needs[676] The subsections below discuss major constraints currently affecting education, training, and public awareness activities in the major institutions within Sudan, and in addition, a roadmap for change to address these constraints. ***Unstable policy process:*** Climate change is not well integrated in the national/state policy and planning systems, partly due to the continuous changes within government institutions related to climate change, lack of information and awareness. ***Inadequate integration of MEAs:*** At present, national development plans and strategies do not effectively incorporate MEA's such as UNFCCC. **Institutional fragmentation:** At the institutional level, there is an absence of awareness crosswise over institutions about their limits to implement potential adaptation strategies, and in addition to training and public awareness raising activities. ***Poor enforcement:*** In many situations, laws and regulations are inadequately enforced. This extremely constrains the effectiveness of plans identified and approved in reduction of GHG emissions and improvement of resilience with respect to climate change effects. ***Lack of capacity:*** There is a general absence of appropriate technology and number and qualified staff involved in climate change. ***Limited capacity:*** Poor physical infrastructure which lacks modern facilities and information/communication technology to keep abreast of new development issues. The human resources sectors also lack appropriate training. ***Uneven research links and capacity:*** Poor linkages between tertiary education and UNFCCC related education and research. Research focuses on single disciplines, as opposed to disciplines leading to multidisciplinary programmes, compatible with climate change as a strongly cross-cutting sector. There exists only informal interactions between universities and research institutions. This

[676] HCENR 2013: 73.

	interaction ought to be based on cooperative arrangements. ***High faculty turnover:*** Notwithstanding the low number of teachers and scientists that are subject matter specialists on climate change, staff turnover issues endure because of poor or low income, and absence of adequate institutional support. ***Limited capacity:*** The NGOs are normally made up of many young people, though full of enthusiasm, lack technical know-how regarding climate change. There is lack of institutions to provide appropriate training for such members. ***Weak institutional networks:*** There exists poor linkages between NGOs and other institutions, with many tasks done within the framework of individual NGOs. ***Limited resources:*** There is limited funding opportunities for climate change awareness initiatives and small scale adaptation projects.

Sudan ratified the *Cartagena Protocol on Bio-safety to the convention on biological diversity, Montreal, 2000* [677] on 13th June, 2005. Date of entry into force was 11th September, 2005.

The Cartagena Protocol on Biosafety (also known as Cartagena Protocol) is an "international legally binding instrument"[678] or agreement on biosafety, which supplements the United Nations Convention on Biological Diversity. This Biosafety Protocol was adopted in Montreal on 29th January, 2000. The Protocol adopted its name following a meeting to tackle issues related to LMOs. The meeting was held in Cartagena de Indias, Colombia in February 1999. Due to issues related trade (environmental concerns versus. commercial interests and trade rules) participants failed to reach an agreement. The meeting was continued in Montreal to conclude the convention. The Cartagena Protocol entered into force on 11th September, 2003 (Article 37). Article 1 (Objective) of the Cartagena Protocol 2000 states that the objective of the Protocol is to be pursued:

> "In accordance with the precautionary approach contained in Principle 15 of the Rio Declaration on Environment and Development, the objective of this Protocol is to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specifically focusing on transboundary movements."[679]

The Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol) is an international and a supplementary agreement to the CBD. Article 19.3 of the Convention on Biological Diversity

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[677] Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol), 29th January, 2000. UN Doc. UNEP/CBD/ExCOP/1/3, at 42 (2000).

[678] Page 1 (Introduction) of the Cartagena Protocol 2000 (Secretariat of the Convention on Biological Diversity 2000. Cartagena Protocol on Biosafety to the Convention on Biological Diversity: text and annexes. Montreal: Secretariat of the Convention on Biological Diversity). (Cartegena Protocol 2000).

[679] Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol), 29th January, 2000. UN Doc. UNEP/CBD/ExCOP/1/3, at 42 (2000); Article 1: *See also*: Article 1 (Objective) of the Cartagena Protocol 2000 (Secretariat of the Convention on Biological Diversity 2000. Cartagena Protocol on Biosafety to the Convention on Biological Diversity: text and annexes. Montreal: Secretariat of the Convention on Biological Diversity). (Cartegena Protocol 2000).

(stated below), requires a protocol on the safe transfer, handling and use of Living Modified Organisms (LMOs):

> "The Parties shall consider the need for and modalities of a protocol setting out appropriate procedures, including, in particular, advance informed agreement, in the field of the safe transfer, handling and use of any living modified organism resulting from biotechnology that may have adverse effect on the conservation and sustainable use of biological diversity."[680]

It aims at protecting biological diversity from what could be described as potentially dangerous threats created by living modified organisms as a result of present day biotechnology. Cureently, it is estimated that 166 countries in addition to the European Union have ratified the Cartegena Protocol. It also seeks to guarantee a satisfactory level of protecting the transfer, handling and utilization of genetically modified organisms (GMOs) that may adversely impact on the environment and human well-being, and precisely focusing on transboundary movements.[681]

It could be noted in the foregoing that, the Cartagena Protocol reaffirms *"*the precautionary approach contained in Principle 15 of the Rio Declaration on Environment and Development."[682] It aims at protecting biological diversity from the potential risks posed by genetically modified organisms resulting from modern biotechnology. The Biosafety Protocol in its Article 7 (i.e. Art. 7 of Cartagena Protocol, 2000)[683] recognizes the need to base products from new technologies on the "Application of the advanced informed agreement procedure."[684]

The Protocol is guided by the precautionary approach in its target of attempting to attain safe transfer, handling utilization of use of LMOs that may have negative effects on the conservation and sustainable use of biodiversity,

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[680] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 142. Art. 19(3).

[681] Laurence Boisson de Chazournes. Convention on Biological Diversity and its Protocol on Biosafety. United Nations Audiovisual Library of International Law, United Nations, 2009: 5-7.
Available at: http://legal.un.org/avl/ha/cpbcbd/cpbcbd.html [Accessed: 16th November, 2016].

[682] Cartagena Protocol 2000: 2 (Introduction). (Cartana Protocol 2000).

[683] Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol), 29th January, 2000. UN Doc. UNEP/CBD/ExCOP/1/3, at 42 (2000), Art. 7.

[684] ibid.

including concerns of dangers to human wellbeing (article 1).[685] While improvements in biotechnology have high chances of improving human wellbeing, it is generally known that LMOs must be liable to satisfactory safety measures. Such measures, referred to as biosafety, try to guarantee the safe transfer, handling, utilization and disposal of LMOs.[686] The focal point of the Protocol's consideration lies on transboundary transfers; the decision processes for import and export of LMOs for planned introduction into the environment and for those LMOs proposed for direct utilization as food or feed. In the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol), the precaution approach is also referred to in Article 11(8) ("Procedure for living modified organisms intended for direct use as food or feed, or for processing")[687] and reads as follows:

The nonexistence of scientific certainty caused by the inadequacy of pertinent scientific data and knowledge relating to the level of the potentially negative effects of a living modified organism on the conservation and sustainable utilization of biological diversity in the importing Party, taking also into consideration risks to human well-being, shall not deter that Party from deciding, as appropriate, with reference to the import of that LMO proposed for direct utilization as food or feed, or for processing, in attempts to prevent or reduce such potentially unfavorable effects. The Protocol permits developing countries to take into account, socio-economic factors and to balance public health interests against potential economic benefits.[688]

The Convention obviously perceives these twin parts of present day biotechnology. From one viewpoint, it offers accessibility to and transfer of

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[685] Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol), 29th January, 2000. UN Doc. UNEP/CBD/ExCOP/1/3, at 42 (2000).Art. 1.

[686] UNEP-GEF-MEPD. Sudan National Biosafety Framework United Nations Environment Programme (UNEP) - Global Environment Facility (GEF) – Ministry of Environment and Physical Development (MEPD) 2005:1. Available at: http://www.unep.org/biosafety/files/SDNBFrep.pdf [Accessed: 24th October 2016].

[687] Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol), 29th January, 2000. UN Doc. UNEP/CBD/ExCOP/1/3, at 42 (2000), Art. 11(8).

[688] Jacek Plazinski, "Implications of International Agreements On Agricultural Biotechnology Products for Trading Nations", Department of Agriculture, Fisheries and Forestry – Australia, APEC ATC WG SubGroup on Research, Development and Extension of Agricultural Biotechnology and JIRCAS Joint Symposium and Workshop on Agricultural Biotechnology, Bangkok, Thailand (Sept. 3-12, 2001). 2001. (Plazinski 2001).

technologies, including biotechnology, that are relevant to the conservation and sustainable utilization of biological diversity (for instance, in Article 16, paragraph 1[689], and Article 19, paragraphs 1 and 2[690]).Then again, Articles 8(g) and 19, paragraph 3,[691] attempt to guarantee the improvement of suitable techniques to upgrade the security of biotechnology with regards to the context of the Convention's general objectives of diminishing every potential danger to biological diversity, considering the dangers to human wellbeing. Article 8(g) manages measures that Parties should adhere to a national level, while Article 19, paragraph 3, sets the phase for the advancement of an international legally binding instrument to tackle the issue of biosafety. As envisioned in article 19, paragraph 3, of the Convention,[692] the Parties gave special consideration to the development of a protocol on biosafety at the first Conference of the Parties (COP) meeting in 1994.

The concluding part of the Biosafety Protocol has been considered a major achievement in that it gives an international regulatory framework to bring together the separate needs of trade and environmental protection with regard to rapidly growing emerging markets and generally encouraging growth in worldwide biotechnology industry. The Protocol thus creates a conducive environment for the environmentally sound use of biotechnology, making it conceivable to get the most advantage from the potential that biotechnology brings to the table, while limiting the conceivable dangers to the environment and to human wellbeing.

In 1995, Sudan became a party to the *Convention on Biological Diversity (CBD)*[693]: The CBD recognizes modern biotechnology as having high potential for improving human well-being, particularly in satisfying acute needs for food, agriculture, and healthcare. Sudan ratified the *Cartagena Protocol on Biosafety (CPB)*[694] in 2005. The Sudan has acceded to the Cartagena Protocol on Biosafety, which regulates movement of genetically modified organisms (GMOs) across borders with the aim of protecting the environment, biodiversity

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[689] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 142. Art. 16(1).

[690] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 142. Art. 19(1) and Art. 19(2).

[691] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 142.Arts. 8(g) and 19(3)

[692] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 142. Art. 19(3).

[693] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 142.

[694] Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol), 29th January, 2000. UN Doc. UNEP/CBD/ExCOP/1/3, at 42 (2000).

and also human wellbeing from conceivable unfriendly impacts of the products of present day biotechnology.[695]

The Constitution of the Sudan[696] requires the conservation of natural resources of the nation and the protection of its diverse environment against any perils.[697] The Cartagena Protocol on Biosafety (CPB) focuses on regulating transboundary movements (Article 1 of the Protocol[698]) of genetically modified organisms (GMOs), with an ultimate aim of protecting the environment and biodiversity, and in addition to protecting human health from conceivable unfavorable impacts of the products of modern biotechnology.[699]

Sudan concluded the development of its National Biosafety Framework (NBF) that was published in November 2005. The country built a National Biosafety Framework (NBF) with help from the United Nations Environment Programme/ Global Environment Facility (UNEP/GEF) project and is currently taking part in a further capacity building project for establishing and operating a Biosafety Clearing House.[700]

The then Biological Safety Bill of 2005 in the framework was passed by the National Assembly into law. The Act is signified to guarantee sufficient level of protection in the area of safe transfer, handling and utilization of genetically modified organisms (GMOs) as a result of modern biotechnology, with special

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[695] UNEP-GEF-MEPD. Sudan National Biosafety Framework United Nations Environment Programme (UNEP) - Global Environment Facility (GEF) – Ministry of Environment and Physical Development (MEPD) 2005:1. Available at: http://www.unep.org/biosafety/files/SDNBFrep.pdf [Accessed: 24th October 2016].

[696] Government of the Sudan. The Interim National Constitution of the Republic of the Sudan, Government of the Sudan. 2005, Chapter II, paragraph 11(3). (Government of the Sudan 2005).

[697] UNEP-GEF-MEPD. Sudan National Biosafety Framework United Nations Environment Programme (UNEP) - Global Environment Facility (GEF) – Ministry of Environment and Physical Development (MEPD) 2005:1. Available at: http://www.unep.org/biosafety/files/SDNBFrep.pdf [Accessed: 24th October 2016].

[698] Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol), 29th January, 2000. UN Doc. UNEP/CBD/ExCOP/1/3, at 42 (2000); Article 1.

[699] El Wakeel AS. Agricultural biotechnology and biosafety regulations in Sudan: The case of Bt cotton. Agric-biotech-conf: 2014. Available from http://www.nasaconline.org/dmdocuments/agric-biotech-conf/

[700] Sudan National Biosafety Framework United Nations Environment Programme, the Global Environment Facility (GEF): 2005. Available at: http://www.unep.org/biosafety/files/SDNBFrep.pdf [Accessed: 18th November, 2016].

stress on the conservation and sustainable utilization of biological diversity and human wellbeing. This being the case, there is to date, absence of research, field trials or commercial release of genetically modified organisms (GMOs). Sudan had previously restricted the import of genetically modified food in 2003 but issued a series of provisional waivers allowing food aid shipments into the country to proceed while alternatives were sort.[701]

In June 2010, the Sudan accordingly passed the biosafety law. The law resulted in the establishment of Sudan National Biosafety Council (SNBC) in June 2012. This Council was set up to practice supervision and control over the development, transfer, handling and use of genetically modified organisms (GMOs) with a view of guaranteeing safety of wellbeing of human and animal health and provision of a sufficient level of protection of the environment. In 2012 the country released its first cotton variety for commercial planting after the establishment of Sudan National Biosafety Council (SNBC) following Confined Field Trials (CFTs) since 2009.[702]

The national Focal Point for the Cartagena Protocol in the Sudan is the Higher Council for Environment and Natural Resources. The National Biosafety Framework (NBF) is in the process of obtaining approval in the National Assembly.[703] The Sudanese Standards and Metrological Organization is charged with the responsibility managing the regulatory body for transboundary movement of GMOs supported by a national technical committee representing different sectors.

Biotechnology can assume a critical part in tackling the numerous challenges and limitations confronting agricultural research in the Sudan. The country is seriously adopting steps to use biotechnology in its attempts to enhance agricultural productivity, both in the animal and plant production. There are currently some basic facilities and capacities for biotechnology but there is a need for strengthening and improving these facilities. Agricultural

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[701] Nang'ayo, Francis. The status of regulations for genetically modified crops in countries of Sub-Saharan Africa African Agricultural Foundation. 2006:9.

[702] Karembu, Margaret, Nguthi, Faith, Asim, Sarra and Chege, Paul. 2015. 2014: Third year of Bt Cotton Cultivation in Sudan. International Service for the Acquisition of Agri-biotech Applications (ISAAA) AfriCenter.

[703] Sudan National Biosafety Framework United Nations Environment Programme, the Global Environment Facility (GEF): 2005. Available at: http://www.unep.org/biosafety/files/SDNBFrep.pdf [Accessed: 18th November, 2016].

biotechnology in the Sudan focuses on tissue culture and molecular markers. It has recently begun producing transgenic crops through regional collaboration.[704]

It is worth mentioning that, to date numerous African nations have signed and ratified the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol) yet implementation of the prerequisites of the Protocol remains an overwhelming test to many. Suffice it to say that only five nations Sudan, alongside Burkina Faso, Mauritius, South Africa and Zimbabwe in sub-Saharan Africa seem to have so far met the fundamental commitments of the Cartagena Protocol on Biosafety.[705] To numerous different nations, instituting legal and administrative procedures and structures for full implementation of the Protocol remains to a great extent "work-in-progress" that will need combined investment in capacity building to convey Africa to the edge where it exploits the benefits accruing from present day biotechnology in safe and environmentally responsible manner.

Sudan is a party to the Convention on Biological diversity and about seventeen (17) other global and regional agreements. This being the case however, little is being done in the Sudan to protect fauna and flora. It has long been acknowledged that required laws and regulations constitute an important tool for protecting and managing natural resources, mainly as a means of imposing restraints. Chapter II, paragraph 11 (3) directs the State to:

> "promote, through legislation, sustainable utilization of natural resources and best practices …".[706]

The failure to enforce these laws protecting the environment might have contributed to underlining causes of conflict, which has in turn led to humanitarian law and human rights abuses in Darfur. In the area of natural resources, these restraints have roots in antiquity as the formal land law in the Sudan is based on a legislation which is fundamentally founded on colonial land laws. Customary land rights are for the most part not formally recognized, and that statutory legislation has traditionally been utilized

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[704] Latif, Abdelrabman. H., Babiker, Elfadil. An interview and current status of agricultural biotechnology in Sudan. Southern and Eastern Africa Cotton Forum (SEACF) meeting: 2012. Available at: https://www.icac.org/wp-content/uploads/2012/09/Sudan_Report1.pdf [Accessed: 18th November, 2016].

[705] Nang'ayo, Francis. The status of regulations for genetically modified crops in countries of Sub-Saharan Africa African Agricultural Foundation. 2006:20.

[706] Government of the Sudan. The Interim National Constitution of the Republic of the Sudan, Government of the Sudan. 2005, Chapter II, paragraph 11(3). (Government of the Sudan 2005).

in bypassing traditional customs by the state or for private interests in rural areas. The inability of the state to clearly define user rights and unclear land boundaries may perhaps be the causes of unsustainable use of natural resources.

Conflicts generally ensue due to contrasting views concerning types of property rights between the state and local people groups. Retracing legal developments in the Sudan has indicated the extent to which local people were dispossessed from ancestral lands and the sufferings they endured. The legal system imposed by a colonial power (i.e. the received law) is partially reflected in the Constitution of the Sudan[707] and as far as law does not comply with people's needs, they do not consider it as binding. Where a legal system imposed by a colonial power and legal evolution is external rather than internal, legal institutions have high chances of becoming much weaker.

3.2 Scope and scale of problems in forest law enforcement and compliance in the Sudan

[Research question 1(b): What are the obstacles that hinder the enforcement and compliance of forest law in the Sudan?]

This section attempts to explain the obstacles that hinder the enforcement and implementation of forest law enforcement and compliance in the Sudan. The significance of enforcement of and compliance with, international and national environmental law is widely accepted as one of the major challenges facing Sudan in the quest for sustainable development. The authorities entrusted with law enforcement, lack adequate statutory powers, awareness, expertise and machineries to enforce laid down planning regulations. During the past two decades, Sudan has enacted elaborate environmental legislation, among others, to protect public health against air pollution, to restore and protect the quality of the natural environment. Sudan has also become parties to a considerable number of conventions, both at the global and regional levels; agreements and protocols.[708]

Forests in Sudan are categorised into three main types, namely forest reserves, plantation forests and community forests. Forest reserves aim at conserving rare and endangered species, and water catchments. The criteria for establishing plantation forests are determined by specific purposes, while community forests are usually reserved for certain socio- cultural practices and the local community plays an important role in forest management. The Forests Act of 1989[709] introduced the 'principle of strict liability' as a strategy in promoting compliance through the principle of deterrence

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[707] Government of the Sudan. The Interim National Constitution of the Republic of the Sudan, Government of the Sudan. 2005, Chapter II, paragraph 11(3). (Government of the Sudan 2005).

[708] Kurukulasuriya & Velasquez 2003:18.

[709] Sudan Government, National Forests Act of 1989, Khartoum, Sudan.

which underlies many environmental compliance activities (to control harmful practices).

Acts prohibited in the reserved area are spelled out in Section 15 of the Forest Act of 1989.[710] The main crimes linked to environmental destruction, and the illegal exploitation of forests and other natural resources include the following:[711]

(a) Creating kindling for fires, carrying a fire in a reserve or causing of fire in a forest reserve;
(b) Illegal entry into a reserved area or staying inside it;
(c) The cutting of any forest crop, collection of it, destruction, causing injury or illegal conversion to personal benefit of any forest product;
(d) The grazing of livestock or allowing them in a reserved area;
(e) The dumping in the forest any harmful materials, liquids or others or found of attempts to throw or burry any kind of waste material;
(f) Removing or relocating, causing destruction, changing or unlawful interference with established with any boundary mark or blazed tree or fence of a reserve.

Acts prohibited outside a reserve are also spelled out in Section 16 of the Forest Act of 1989.[712] The major crimes that are connected to environmental damage, and the illegal exploitation of forests and other natural resources include the following:[713]

1. No individual might transport or endeavor to transport any forest produce by any methods of transport without acquiring a permit from the competent authority;

2. The general director or to whom he may designate his powers should be the authority issuing licenses on account of forest produce taken.

3. While using the means of transport in traffic, the driver shall be obliged to carry with him for the duration of the time he is transporting the forest produce the permit and should show it as and when he is requested to do so.

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[710] Sudan Government, National Forests Act of 1989, Khartoum, Sudan.

[711] Sudan Government, National Forests Act of 1989, Khartoum, Sudan; Article 15(1)(a - f).

[712] Sudan Government, National Forests Act of 1989, Khartoum, Sudan.

[713] Sudan Government, N
ational Forests Act of 1989, Khartoum, Sudan; Article 16(1-3).

4. Buying or obtaining forestry produce is not permitted unless it is accompanied with a permission to purchase or fell such trees (removal pass) has been obtained from the competent authority.

The Forest Act 1989[714] aims at protecting forests in the forest-reserved area and outside reserved areas. A valid removal pass is required for all carriers or transports hauling forest products; without which the consignment is considered illicit. Similarly, the Forests Act 1989 emphasizes that encroaching on forest land by land users such as farmers, especially those engaged in commercial production, and settlement in forests are illegal. Field investigations carried out by the current researcher in an earlier study indicate that the purpose envisaged in the forest policies and laws can hardly be considered working successfully, as the states of Sudan exploit the few forest reserves that are found in their areas without any effective protection and management plan. A research conducted by Glover[715] among mechanized scheme farmers, collaborative reserve farmers and smallholders in Gedaref State in the Sudan suggests that the formal management based on government control of the forest reserves and prevention of local people's entry is a failure and unsustainable as indicated in Table 10.[716]

Results in Table 10 show that most respondents did not obtain permission from FNC or local leaders prior to entering the forest reserve. Table 10 also indicates that about one-third of the smallholders obtained permission to enter the forest reserve, while the majority of them entered without. The high percentage of respondents (62 %) who entered the Elrawashda forests without permission (Table. 10) may explain the large chunks of forest areas being excised and converted to agriculture and settlement to satisfy the demands of adjacent populations. With respect to forest reserves in the study area, local and adjacent communities have illegally encroached on forest areas to make charcoal, cultivate, engage in pastoralism, thereby gradually pushing the wildlife and forests to smaller and drier areas. The illegal felling of trees also eventually results in forest degradation (see Table 11).

[714] Sudan Government, National Forests Act of 1989, Khartoum, Sudan.
[715] Glover 2005: 110
[716] Glover 2005: 66.

Table 10. Ways of access to forest reserve as indicated by respondents.[717]

Farmer category	Frequency	Access arrangement			Total
		License from FNC	Permission from local leader	No permission	
Mechanized scheme farmers	Count	12	0	45	57
	% within category	21.1	0.0	78.9	100.0
	% between categories	22.2	0.0	44.6	35.2
Smallholder farmers	Count	19	7	49	75
	% within category	25.3	9.3	65.3	100.0
	% between categories	35.2	100.0	48.5	46.3
Collaborative reserve Farmers	Count	23	0	7	30
	% within category	76.7	0.0	23.3	100.0
	% between categories	42.6	0.0	6.9	18.5
Total	Count	54	7	101	162
	% within category	33.3	4.3	62.3	100.0
	% between categories	100.0	100.0	100.0	100.0

n=162 respondents; χ^2 =39.00; p<0.001.

[717] Glover 2005:67.

Results from field data showed that forest reserve and forests outside reserves experience continuous degradation and decline due to, among others mismanagement, lack of enforcement of forest legislation and low inputs of investment in forest protection. The present results from field data coincide with the findings of the World Bank[718] that related the decline in woodlands in Kordofan and Daurfur in the Sudan to lack of enforcement of adequate forest legislation and policies, which also resulted in a general degradation of the ecosystem. The World Bank's findings indicate that in the Kordofan and Daurfur in the Sudan, about 88,000 ha of woodlands are cleared annually for conversion to rainfed mechanized scheme agriculture. It is also reported that an estimated 42,000 ha of this land in Kordofan and Darfur areas, become degraded, unproductive and then abandoned as a consequence of continuous mono-cropping of sorghum for three to four years. The field analyses suggest that the central forest management based on government control of the forest reserves and prevention of local people's participation in decision-making process and entry is a failure of state forest governance and unsustainable.

The Sudan as a country also suffers from structural limitations of the regulatory approach with reference to environmental natural resource legislation and policy .It could be stated that the content of greater part of environmental natural resource policies is focused on systems of rules and regulations relating to forestry, that are basically proscriptive, imposing penalties and fines for violations. In the forestry sector implementation of forest policy focuses on people's prevention and punishment of trespassers. In addition, underpaid, under-supervised field staffs resort to supplement their meagre incomes with bribes and side-payments for preferential enforcement of regulations, reduction in fines etc.

Corruption is a contributing factor in making resource conservation still more difficult[719]. in an earlier study, reported that corrupt practice is need driven when grossly underpaid low-level workers (especially the forest guards) accept bribes to foot the bills of basic necessities, e.g. food and clothing. On the other hand, corruption is induced by the insatiable avarice of officials for wealth. Greed-driven corruption is much more prevalent in the forestry sector and well-paid authorities in higher-level positions, as they do not rely on bribery to survive. The underpaid low-level workers often sought bribes from villagers to prop up the meagre salaries: who then get themselves involved in violations of the rules. Besides, administrative and political factors result in ineffective legislation and policy implementation, distortions and perverse incentives as users seek to

[718] World Bank 1984.

[719] Glover 2005:110-113

circumvent forest regulations with impunity. The formal forest management policies consisting of the exclusive state control over natural resources can result in unsustainable exploitation of forest resources and an ultimate failure in managing forest resources.

Experiences from Elrawashda are quite obvious and consistent with the findings of McLain[720] who reported that villagers in Mali preferred to engage in corruption and bribery of forestry authorities to create 'safe passage' for the illegal cutting of trees as they wanted; instead obtaining licenses to cut under strict control. The present findings are consistent with the results of Glover[721] who reported that local people consider fines as the unrestrained open-access use of forest resources rather than measures boosting community controlled utilization.

As mentioned earlier, various land use policies and laws exist in the Sudan regarding reservation and protecting the rights of all land users; especially national legal systems recognizing the access to forest land and use rights of local people in and around reserved forests. Acts prohibited in the reserved area are stipulated in Section 15 of the Forest Act of 1989.[722] Penalties for trespass or crimes linked to damage in reserved forests including illegal exploitation of forests and acts prohibited in such forests are stipulated in Sudan Government, National Forests Act of 1989, Khartoum, Sudan; Article 15(1)(a - f).[723] However, the government continues to attempt the process of restricting local access, expanding custodial state control over forests while further curtailing community rights and introducing police authority. Although the reserved forests are meant to satisfy the needs of rural and urban areas, a gap exists between this rhetoric of policies and the reality of inadequate implementation. It is evident that the management plans for these forests focused on the abusive exploitation of forest lands and forest resources, and failed to take into consideration the needs, such as grazing and fuelwood collection, of the local people. The mismanagement of forest lands and forest resources is further worsened by the FNC's own lack of control and ability to enforce rules.[724]

Bearing in mind the foregoing considerations, it is imperative for the Government of the Sudan to take reasonable measures, within its available means to bridge the gap between legality and legitimacy of land legislation. It is

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[720] McLain 1990

[721] Glover 2005:110-113

[722] Sudan Government, National Forests Act of 1989, Khartoum, Sudan.

[723] Sudan Government, National Forests Act of 1989, Khartoum, Sudan; Article 15(1)(a - f).

[724] Abdalla and Holding 1988, Glover 2005, Glover and Elsiddig 2011)

recommended that the Government of the Sudan build effective, equitable and sustainable systems; instead of seeking to impose standardized and rigid organizational models that are unfamiliar to local people and which are unenforceable body of norms. The Sudan Government has since 1994, established excellent pilot examples of integrated resource management through partnership between government and local communities. This project aimed at sustainable development of agriculture and forestry. The government being convinced with these approaches enters into a contractual relationship between local people and their land, and natural resources. Legal and institutional mechanisms whose net effect would be to divest the Sudan Government of de facto state-controlled monopoly power and rights, and empower local people to partner with forest service or land management agencies in management of natural resources would have to be devised.

In summary, it could be said that in the Sudan, a vital limitation to sustainable forest management is a lack of compliance with existing forest laws at all levels of society. The effects of this – deforestation, the degradation of forest resources, and the loss of state revenues – are comparative in all sub-Saharan African nations. Illicit forest resource extraction and related trade at the national and international levels global levels are an outcome of cross-sectoral arrangement shortcomings,; an absence of responsibility among stakeholders regard, stick to and uphold and enforce forest policies and regulations; an insufficient regulatory and legal framework; and constrained institutional capacity for law enforcement, which can prompt corruption.

Deforestation and legal insecurity regarding land use and tenure are the fundamental threats to forest law compliance in the Sudan (see Table 11). The illicit extraction of forest resources, including fuelwood, medicinal plants and wildlife, coupled with commercial trade of animal parts or products, has a serious ecological impact within the Sudan.

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Table 11. Major causes of damage to forests as indicated by respondents.[725]

FC	Frequency	Major causative factors																T
		M	O	U	CO	OI	I	COI	OU	C	CM	COG	IM	OP	OIP	CP	CIP	EO	
MSF	Count	4	6	0	5	5	6	6	0	2	12	0	7	0	1	1	0	2	57
	%within category	7.0	10.5	0.0	8.8	8.8	10.5	10.5	0.0	3.5	21.1	0.0	12.3	0.0	1.8	1.8	0.0	3.5	100.0
SHF	Count	14	9	0	9	6	7	4	1	5	4	1	7	3	1	1	2	1	75
	%within category	18.7	12.0	0.0	12.0	8.0	9.3	5.3	1.3	6.7	5.3	1.3	9.3	4.0	1.3	1.3	2.7	1.3	100.0
CRF	Count	6	3	1	6	3	2	1	1	0	6	0	0	1	0	0	0	0	30
	% within category	20.0	10.0	3.3	20.0	10.0	6.7	3.3	3.3	0.0	20.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	100.0
Total	Count	24	18	1	20	14	15	11	2	7	22	1	14	4	2	2	2	3	162
	%within category	14.8	11.1	0.6	12.3	8.6	9.3	6.8	1.2	4.3	13.6	0.6	8.6	2.5	1.2	1.2	1.2	1.9	100.0

[725] Glover 2005: 154.

n = 162 respondents; $\chi^2 = 35.35$; $p > .05$; FC = farmer category; MSF = mechanized scheme farmers; SHF = smallholder farmers; CRF = collaborative reserve farmers; T = total, M Mechanization; O = over-cultivation; U = urbanization; CO = cyclic events (e.g. drought) and over-cultivation; OI = over-cultivation and illegal cutting of woods, I = illegal cutting of woods; COI = cyclic events, over-cultivation and illegal cutting of woods; OU = over-cultivation and urbanization; C = cyclic events e.g. drought; CM = cyclic events and mechanization, COG = cyclic events, over-cultivation and overgrazing; IM = illegal cutting of woods and mechanization; OP = over-cultivation and effect of management by FNC; OIP = over-cultivation, illegal cutting and effect of management by FNC; CP = cyclic events and effect of management by FNC; CIP = cyclic events, illegal cutting of wood, effect of management by FNC and overgrazing; EO = effect of management by FNC and overgrazing.

Results from Glover's research are consistent with the findings of Eltayeb,[726] who conducted research in Gedaref State and found that in the period 1945-1985 vast areas of forest lands were indiscriminately felled, to pave way for mechanized rain-fed schemes. He observed that the conversion of forest lands to agriculture during 1945 -1985 ranged from 88,200 ha to 1,483,000 ha. A similar study conducted by Elmubarak[727] found that the forest lands in the Gedaref State declined from an estimated area of 2,835,000 ha (equivalent to 78% of Gedaref State) to less than 651,000 ha (equivalent to 20% of the total area of the State) during the last fifty years, due to mechanized farming. This type of farming resulted in a decline of forest stock from 50 million cubic metres to less than 9.5 million cubic metres.

As Table 11 shows, malfeasance in forests had taken several forms in the Sudan. It involved the disobeying rules and regulations, corruption or the use of dishonest actions, the abuse of power, and the illicit gathering/collecting and trading of products. It also involved deforestation or the illegal conversion of forests into agriculture and the unsustainable use of forests in general (resulting in forest degradation). Deforestation and forest degradation have largely, adverse consequences on household food security and livelihoods, and adverse effects on individuals' perceived well-being.

Despite the vital role of the Forests National Cooperation (FNC) of the Sudan, in controlling exploitation of forest resources and trade in wildlife and products, it became known that the implementation of forest laws and land use policy relating to the harvesting and trade of timber and wildlife has been ineffective and beyond the capacities of government forest management.

Section 30 of Forests Act 1989[728] spells out the punishment of certain prohibited acts: Any person who commits an act prohibited by paragraphs (a), (e), (f) and (g) of section 15 of the Forests Act 1989[729] shall be punishable by imprisonment for a term not less than six months, and not to exceed two years or shall have to pay a fine of not less than two hundred pounds and not to exceed two thousand pounds, or with both.

Any person who commits an act prohibited by paragraphs (b), (c) and (d) of section 15 and also prohibited by section 16 of the Forests Act 1989[730] shall, on conviction for the first time, be liable to punishment with imprisonment for a

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[726] Eltayeb 1985:

[727] Elmubarak 2002:

[728] Sudan Government, National Forests Act of 1989, Khartoum, Sudan.

[729] Sudan Government, National Forests Act of 1989, Khartoum, Sudan, Section 15, para. (a), (e), (f) and (g)

[730]Sudan Government, National Forests Act of 1989, Khartoum, Sudan, Section 16

term not less than six months and not to exceed five years or with a fine not less than twice the amount of the value of the seized produce or with both. In the event of a repetition of the same offence, the offender shall be punishable by imprisonment for a term not less than one year and not to exceed ten or with fine not less than double the amount of the value of the seized produce or with both.

Section 32 of Forests Act 1989[731] spells out the penalty for other offences: Any person who commits a breach of any provision of this Act or of any regulation or rule made hereunder, shall be punished on conviction with imprisonment for a term not less than six months and not to exceed two years or with a fine of not less than LS. 500 (Five hundred pounds) and not to exceed LS. 3000 (three thousand pounds) or with both. The fine, penalty under Sections 30 and 32 of the Forests Act 1989[732] is found either inadequate or being not effectively applicable to check the degradation of the environment, since it does not portray the serious consequences of environmental degradation. Many people would consider this fine, penalty as a deduction for expenses incurred while operating an illegal felling business that is required to make a profit. The consequent result is a failure in managing the resources from indiscriminate exploitation and degradation.

Examination of the official Police records revealed lapses in the enforcement of the Forest Act 1989. The Forest Act 1989 was not sufficiently enforced. The effectiveness of environmental legislation depends on adequate degree of compliance. Environmental Laws act as sources of enforcement mechanisms and expect the responsible authorities to uphold the law. The Sudan has anyway been encountering issues of weak enforcement that is rendering the national environmental laws and regulations sometimes incapable in preventing infringement.[733] Archival and administrative records of the number of forest offences registered by the police or prosecuting attorneys' offices, cases still pending investigation in comparison with cases brought to trial (Table 12) were indication of ineffectiveness of enforcement of the Forest Act 1989.

Table 12 also reports the number of cases that were brought to trial upon completion of investigations and the number of judgements has been recognised as exceptionally low. Tables 10 -12 reveal that capacity for enforcement of laws that were designed to safeguard forest resources etc. is weak. Weak enforcement

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[731] Sudan Government, National Forests Act of 1989, Khartoum, Sudan, Section 32..

[732] Sudan Government, National Forests Act of 1989, Khartoum, Sudan, Sections 30 and 32.,

[733] UNEP, Enforcement of Environmental Law: Good Practices from Africa, Central Asia, ASEAN Countries and china China ASEAN Environmental Cooperation Centre ; United Nations Environment Programme . 2014.. (UNEP 2014.

of laws is generally due to ineffective legal mechanisms to ensure compliance with court decisions, inadequate resources and lack of experience and incompetence on the part of the judiciary or disinterested prosecutor of criminal contempt. .[734]

[734] Hamid, Abdel H. A., Mwiturubani, Donald A. and Osiro, Deborah. Nature and extent of environmental crime in Sudan: Situation Report. Institute for Security Studies, Pretoria, South Africa. 2010: 16 (Hamid et al. 2010:16).

Table 12. Registered forest offences[735], investigations and cases brought to trial (2004 – 2008).[736]

Year	Criminal cases filed	Cases settled during investigation	Cases under investigation	Cases submitted for trial	Cases with judicial decree	Untried cases
2004	1 140	112 (0.7%)	620	292	152 (13.3%)	885 (77.0%)
2005	1 625	169 (10.4%)	58	1 062	338 (20.8%)	1 118(68.8%)
2006	2 023	368 (18.2%)	218	568	303 (15.0%)	1 352 (66.8%)
2007	1 859	681(36.6%)	357	763	461 (24.8%9	717 (38.7%)
2008	1 884	424 (22.5%)	940	515	176 (9.3%)	1 284 (68.2%)
Total	8 520	1 754	2 211	3 200	1 430	5 064

[735] "Forest Offence" implies an offence punishable under he provisions of the Forests Act 1989 or any regulations or rules made thereunder (Sudan Government, National Forests Act of 1989, Khartoum, Sudan, Article 2(3)(b) para. 1.

[736] FNC Annual Reports 2004-2008 cited in Hamid, Abdel H. A., Mwiturubani, Donald A. and Osiro, Deborah. Nature and extent of environmental crime in Sudan: Situation Report. Institute for Security Studies, Pretoria, South Africa. 2010: 16 (FNC 2010:16).

The perceptions of farmers are opposite of those of the state. Contradictory directions in forest policy, as well as arbitrary and uneven enforcement of existing regulations by the government, continue compounding issues of negative discernments. Particularly around protected areas, forest dependent communities feel that they have legitimate claims to the forest areas than the government, based on their cultural legacy and the production systems that they have kept for several years,

From a legal point of view, the greatest difficulty lies not only lie in the effectiveness of the legal framework, but in its enforcement or implementation. As Table 12 indicates, the Forest Act 1989 has not been adequately enforced; considering a comparison of forestry offences registered with the police or offices of prosecuting attorneys, number of cases pending under investigation and trial (Table 12).

The courts rarely apply strict liability as sanctions for establishing the necessary credible threat to compel compliance in forestry cases although the legislature deliberately ruled out qualifying words referring to the state of mind of the accused such as "wilfully" and "knowingly" the existence of *mens rea* on, the part of the accused would have been absolutely necessary. As the phrase goes in the standard common law test of criminal liability, "*actus non facit reum nisi mens sit rea.*" Therefore, in jurisdictions with 'due process', there must be in place an *actus reus*, coupled with a level of *mens rea* to constitute the crime with which the defendant is charged.

With reference to the work of Hallberg, [737] an important point to consider when strategizing development of laws and regulations is to ensure availability of different types of prohibitions, environmental permits and conditions linked to them as well as compensations for environmental damages. These systems may play important roles in ensuring that environmental requirements are designed to address the circumstances related to specific facilities. A pre-requisite requirement of these systems is to develop permit application procedures, process applications and issue in coordination with other lead agencies.

Hallberg [738] has also argued that the issue of licenses and permits is a valuable implementation tool for the prevention of environmental harm. This system allows e.g. countries, institutions or individuals to set and enforce limits on the

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[737]Hallberg, Pekka. Rule of Law in a Global Context. In: Hollo, E. J. (ed.), "Environmental Law Studies: Human Rights and the International Environmental Law," *The Journal of Environmental Law (Ympäristöjuridiikka)*, 2012. 36: 11-28. (Hallberg 2012).

[738] ibid.

concentration of specific pollutants, which are allowed to enter the environment. It regulates for example the quantity of substances released into the water and thus prevents water pollution. The use of licenses and permits implies that people cannot degrade the environment or discharge polluting substances to any of the environmental media without holding a permit or license to do so. Situations like this may allow the quality of the environment to be preserved and safeguarded. All industrial facilities which act as sources of waste would be obliged to register with the agency and be provided with permits and licenses.

The requirements of compliance may be procedural such as to submit a report or substantive such as to undertake an activity that protects the environment. Therefore, enforcement is part of the compliance process and to strengthen forest law enforcement and governance, the courts must be empowered to do more to enforce environmental laws and enhance the rule of law. The court may order the incentive of the 5% proceeds of forfeited property to be paid to anyone who prosecutes an offender or who acts as a principal witness in prosecution should be embodied in the Forests Act 1989. Designation of special courts and prosecutors for illegal logging to accelerate the prosecution of court cases, promote the enforcement of the forestry laws as well as enhancing public awareness and knowledge of the environment. Tribunals, established to deal specifically with environmental issues may play an important role in promoting increased general environmental awareness among the public**.**

Without compliance, the rule of law has no meaning.[739] The importance of compliance, rule of law, and good governance is nowhere more important than in the field of environment and sustainable development.[740] The need to strengthen enforcement and compliance has been widely recognized. For example, the participants of the Rio Earth Summit in 1992 recognized this necessity in Chapter 8.21 of Agenda 21, which established an international

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[739] See e.g. Spegelman, Paul J. 'Without a substantial level of enforcement, the rule of law is simply devoid of meaningful content.' *Address at the ICAC-Interpol Conference*, Hong Kong (January 22) A*vailable at*:
http:www.lawlink.nsw.gov.au7sc%5Csc.nsf/pages/spigelman_300103.[Accessed: August 6, 2012]. See also
Petersmann, Ernst-Ulrich. "How to Promote the International Rule of Law? Contributions by the World Trade Organization Appellate Review System," *J. Int.'L Econ. L*. 1998.

[740]Zaelke, Durwood. Stilwell, Mathew and Young, Oran. Compliance, Rule of Law and Good Governance. What Reason Demands: Making Law Work for Sustainable Development. In: Zaelke D., Kaniaru K. & Kruziková E. (ed.) 2005: *Making Law Work: Environmental Compliance & Sustainable Development.* 1st ed. London: Cameron May Ltd. 2005. (Zaelke et al. 2005).

obligation to build capacity for compliance and enforcement as an integral part of environmental management.[741] Thus methods that have been considered as "development" –in agriculture, by the continuous unplanned[742] or unauthorized[743] expansion of mechanized rain-fed schemes, and in forestry, by government protection of forest reserves as well as prevention of people's entry into the forest have resulted in overgrazing and deterioration and land degradation, and other natural resources inside and outside the reserves[744]

The aim of the Forest Act 1989 is to guide the positive development of the forest sector and facilitate sustainable forest management. This being the case, there exists a gap between this rhetoric and the reality. Forest management practices in the Sudan are highly restrictive and protectionist, guards with guns are employed to protect the forests and tree cutting is permitted only in forest reserves and on issue of a permit from the forest authorities. The conflicting pressures on the forest resource are further exacerbated by the FNC's own lack of control and ability to enforce rules.[745]

As noted in the Forest Act 1989 there exists land use laws with respect to reservation and protecting the rights of all land users, especially legal provisions specifying people's access to forest land. However, the government engages in the practice of expanding custodial state control over forests while further restricting community rights and authority. As Tables 10 and 11 deminstrate, a major challenge facing the Sudan is how to rid themselves of colonial law governing natural resources, in particular forestry chiefly protected by the exercise of police power. As elsewhere in Africa, the capacity of local communities to solve their environmental problems depends on a regulatory

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[741]Agenda 21 Programme of Action for Sustainable Development UN GAOR, 46th Sess., Agenda Item 21, UN Doc A/Conf.151/26 (1992). (Agenda 21 1992) Chapter 8, Section I, Para. 8.21. (UNCED 1992);
United Nations, Agenda 21: Programme of action for sustainable development; Rio Declaration on Environment and Development ; Statement of Forest Principles: the final text of agreements negotiated by governments at the United Nations Conference on Environment and Development (UNCED), 3-14 June 1992, Rio de Janeiro, Brazil, Bonn, Germany: United Nations 1993. Agenda 21, Chapter 8, Section I, Para. 8.21.
See also: United Nations, 'Agenda 21', UNCED, Brazil, June 1992). Available at: <http://www.un.org/esa/sustdev/documents/agenda21/english/Agenda21.pdf> [Accessed: 21st November, 2012] (UNCED 1992): Agenda 21, Chapter 8, Section I, Para. 8.21.

[742] Salih 1987

[743] Elmoula 1985

[744] Glover 2005: 106.

[745] Abdalla and Holding 1988.

framework governing access to natural resources. This thought still may draw on colonial laws and policies, which do not recognize the potential and rightful role of local communities as stakeholders in both exploitation and conservation.

In recent developments, the government attitude has somewhat changed towards allowing on pilot bases, more rights to people to access the forest reserves on the collaborative management system. The pilot-based collaborative management[1] system inside the forest reserves encourages integrated land use system where farmers and pastoralists are involved. Contracts form the basis of a solid working relationship and define the type of use permitted. The collaborative reserve farming practiced on a pilot scale benefits from government management plans.

On the other hand, there has not been any management mechanism in force targeting successful implementation of other initiatives[746] The reserved forests are meant to provide the needs of local and urban areas.[747] Management plans for these forests only focused on the exploitation of forest products and did not fully take into consideration the needs of grazing and fuelwood collection of the local people.

The independent Republic of the Sudan did not disturb the system of natural resource management inherited from the colonizer, but adopted the various colonial laws and regulations on land, wildlife, water, and forest management. While the Government has reviewed some of this inherited legal regime, it still echoes its predecessor. All the management activities executed within the natural forest reserves are based on legislation that prevents local communities from access to the forest and use of them Nor has a wood production system been developed other than dead wood collection and sales based on licenses issued when needed, not on planning and a proper management system.[748],[749]

Nevertheless, natural forest reserves in the Sudan play an important role in providing rural and urban populations with forest products and other services. Since the time when reservation of natural forests started (1923), the policy has been to concentrate on the management of forest reserves under government control to organize felling programmes, protection, conservation development

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[746] Glover 2005: 112.

[747] Abdulla and Holding 1988.

[748] Glover 2005: 15; 50; 60; 68.

[749] The management was accordingly reflected in the way of protection, patrolling, guarding and policing: a practice more oriented towards control and punishment than development and sustainable management. (ibid.).

and management.[750] It was understood that the management of natural forest reserves would also facilitate conservation of forest resources outside the reserves and maintain a sustainable supply of people's needs. However, a review of forest policy and legislation indicated that the main body of legislations mean to govern and protect natural resource tenure in the Sudan is a remnant of the colonial era, which ushered into the merging of sovereignty and property rights.

In spite of the fact that the formal land law has experienced substantial changes under successive governments, the legislation is basically formulated on the basis of colonial land laws. It has been the case in the Sudan that customary land rights are generally not recognized by the government and that statutory legislation has traditionally been utilized in bypassing local customs by the state or for private interests in rural areas. The inability of the state to clearly delineate land boundaries or define rights and unclear boundaries result in increased tensions. Conflicts generally arise as a result of contrasts between types of property rights between the state and local people groups. Conflicts also arise even because of dfferences in the perception and definition of land ownership.

In spite of a significant rise in global demand of communities and other local resource users who have clear rights[751] and responsibilities for their natural resources, supported by an enabling policy, including a legislative framework which facilitates the process while retaining regulatory control of last resort, resource use rights in the Sudan are still in their infancy. In the current context of proliferating policies and legislation, which promote sustainable and equitable use of forests smallholders face some special challenges. Besides the threat of exclusion versus a new opportunity to value sustainable forests, they also face the socio-cultural challenge to meet the set standards that come with the

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750 Elsiddig, Elnour. A., Eltayeb, Abdalla M. and Abdel Gadir, Abdelazim Y. Sustainable Management of Natural Forests in Jebel Marra: With Consideration of Community Needs. SECS-JMFC, 1999. (Elsiddig et al. 1999).

751 In spite of the popularity of customary law, the land and resource rights of most communities are inadequately recognised or covered by national laws – they lack security of tenure (Pritchard 2013: 6).

Clear and secure land tenure is central in livelihood improvement and sustainable management of natural resources, particularly forests. Lack of community tenure rights can result in conflict and environmental degradation when consumers compete for control over these resources. On the other hand, clear and secure tenure rights, and the responsible governance of tenure rights, encourage development that can play important role in eradication of poverty and food insecurity. It can also protect biodiversity and also promote responsible investment (ibid. p. 8).

introduction of any innovation especially in relation to the management of resources.

Despite the efforts and the on-going reservation process, natural forest reserves in the Sudan continued to be mismanaged and ineffectively protected. They were in 1999 very poorly stocked and under high pressure of exploitation, although they were fully stocked at the start. Historical data of the resource assessments in Sudan indicates declining trends in the forest area[752], [753], [754] Forest and woodland were approximating 40% [755], [756] but presently cover only 19 - 25% of the total area of the country. This decline is mainly attributed to the expansion of agriculture, grazing, building and fuel wood consumption. However, local people living in villages around each forest reserve are practically the main beneficiaries, legally or illegally, practicing all sorts of land use inside the reserves including farming, dead wood gathering, grazing, charcoal production and collection of non-timber products. Such conflicting practices of government and local people as stakeholders resulted in forest depletion and some forests converted to bare land.[757]

According to the Forests National Corporations (FNC) (19995), forestry accounts for an estimated 12% or more of GDP. However in 1999 the total demand for forest products was estimated at 16.0 million cubic meters (FNC 1994), whereas on the supply side the annual increment in forest stock was in 1998 estimated at only 11.0 million cubic meters (FNC 1998). This clearly indicates the annual loss in the biomass stock. Agriculture remains the backbone of the economy of Sudan; in 1999 and it accounts for an estimated 49% of Gross Domestic Product (GDP), 55% of employment, and 85% of export earnings. It

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[752] Harrison, M. N. and Jackson, J. K. Ecological classification of the vegetation of the Sudan. Forest Bulletin No. 2. Ministry of Agriculture, Khartoum, 1958. 45 p. (Harrison &Jackson 1958).

[753] FAO. 'Forest resources assessment 1990: Survey of tropical forest cover and study of change processes.' FAO Forestry Paper 130. FAO, Rome, 1996. (FAO 1996).

[754]Forests National Corporation (FNC). National Forestry Inventory in Sudan 1998-1999. Forests National Corporation, Khartoum. 1999, 26 p. (FNC 1999).

[755] Brown, Lester R. and Wolf, Edward C. Reversing Africa's decline. *Worldwatch Paper* No. 65. 81 p. 1985. (Brown & Wolf 1985).

[756] FAO. Global forest resources assessment 2000. Main report. FAO Forestry Paper No. 140. Rome. 2001. (FAO 2001).

[757] ibid.

is estimated by the Forests National Corporation (FNC) that forestry sector accounts for more than 12% of GDP.[758]

In the Sudan a vital limitation to sustainable forest management is a lack of compliance with existing forest laws at all levels of society. The effects of this – deforestation, the degradation of forest resources, and the loss of state revenues – are comparative in all sub-Saharan African nations. Illicit forest resource extraction and related trade at the national and international levels global levels are an outcome of cross-sectoral arrangement shortcomings, an absence of responsibility among stakeholders regard, stick to and uphold and enforce forest policies and regulations; an insufficient regulatory and legal framework; and constrained institutional capacity for law enforcement, which can prompt corruption.

There is empirical evidence that a well-designed strategy for institution building should take into account local knowledge and should not over-emphasize best practice blueprints observed in developed countries at the expense of local participation and experimentation. While many, although not all of the countries that received law from the Western law not only accelerated the development of a formal legal order, but altered the preexisting order profoundly, and not infrequently with detrimental outcome.[759]

Faced with environmental problems and challenges for sustainable development[760] in sub-Saharan Africa, this study focuses on the Sudan, a country

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[758] Forestry Outlook Study for Africa (FOSA) Sudan Government of Sudan Ministry of Agriculture and Forests National Corporation, Khartoum, Sudan, 2000: 4. (FOSA 2000).

[759] Rodrik, "Institutions for High/Quality Growth: What they Are and How to Acquire them." *35 Studies in Comparative International Development* (3), 3 (2000).

[760]Sustainable development describes development that is scientifically and technologically appropriate, economically viable, environmentally friendly, ethically and socially equitable. This concept was reported in a report titled "Our Common Future," also known as the Brundtland Report, produced by the World Commission on Environment and Development (WCED) (United Nations General Assembly. Report of the World Commission on Environment and Development: Our Common Future. Oslo, Norway: United Nations General Assembly, Development and International Co-operation: Environment. 1987. (Transmitted to the General Assembly as an Annex to document A/42/427 - Development and International Co-operation: Environment). (See also: World Commission on Environment and Development, Our common future. Report of the World Commission on Environment and Development (1987). Oxford: Oxford University Press, 1987). (WCED 1987).

once colonized by Britain. This study was designed to illustrate the very different legal and institutional mechanisms that have been used or being used to protect and manage natural resources, in particular forests. As demonstrated by Tables 10 , 11 and 12, it could be stated that, the government of the Sudan has failed to implement and/or develop legislations or policies to protect indigenous peoples and in particular laws about forest resources, and land. Besides, land-related issues, do not ensure that the livelihood and concerns of indigenous populations are effectively recogniosed. The main body of rules governing natural resource tenure is a remnant of the colonial era, which ushered in the merging of sovereignty and property rights. Certain themes (commercial use, state forest control) were presented as 'natural' focus of forest management, while other themes (subsistence use, local forest control) were marginalized.

Inadequate implementation of environmental legislations contributed to disappearance of certain species of plants, almost completely from the Sudan scene. Traditionalists and Herbalists for example searching for a particular species of plants/herbs for treatment but to no avail. Forestry legislation that did not effectively take into consideration or reflect the role/rights of local people living in, around or adjacent forests.A forest policy that pays special attention to government programmes and little attention to provision of financial and technical support to forestry programmes and activities outside of the forest reserves. Forest law offers little acknowledgment of the potential of forestry practice past the outskirts of gazette forests.

Bearing in mind the foregoing considerations, the current study therefore argues that: The persistence of environmental degradation in the Sudan is attributed to the failure of/or inadequate environmental enforcement mechanisms (actions taken in case of non-compliance with environmental law) in relation to compliance with international environmental treaty obligations.

(i) Cross-cutting capacity needs at the institutional and legal level in implementation of Multilateral Environmental Agreement in the Sudan

Under above mentioned agreements, Sudan practices a federal system of political governance in which power is divided between one central and several state governments. According to the National Capacity Self-Assessment (NCSA) for Global Environmental Management, Sudan,[761] several levels exist within this system, which is aimed at distributing, sharing and delegating authority, supported by the Initial National Communications (INC). It is believed that there is an urgent need for institutional reform and capacity-building at all levels in order to generally support governance, and in particular environmental governance.

The following paragraphs discuss the cross-cutting capacity constraints, needs and priorities at the institutional and legal level in the implementation of Multilateral Environmental Agreement (*MEA),* as reported in the 2008 National Capacity Self-Assessment (NCSA) for Global Environmental Management, Sudan:[762]

Regarding the implementation of improved Multilateral Environmental Agreement (MEA*),* there is a need *to restructure national institutions, formulate and implement national programmess*. Another contributing factor to implementation of MEA is increased coordination among MEA national focal points.

The focal point of the Convention in the Sudan needs to strengthen its capacity to support the design of and preparation of national Strategy. The country also needs well written and detailed or comprehensive management plans and should provide a sound basis for management of the Ramsar site and for developing and executing public awareness and educational programmes about the convention. In the Sudan, Higher Council for Environment and Natural Resources (HCENR) represents the focal point for United Nations Framework Convention on Climate Change (UNFCCC) and United Nation Convention for Biodiversity (UNCBD). Additionally, the National Drought and Desertification Control Unit (NDDCU) in Ministry of Agriculture and Forestry (MAF) represents the focal point for the United Nation Convention to combat Desertification (UNCCD).

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[761] NCSA 2008.

[762] ibid.

There is a need to put in place *strategic planning as a basis for institutional reform*, with the purpose of improving structures, functions and relationships within and among environmental and natural resource agencies. Presently, links between ministries and administrations experience frequent changes that sometimes lack a clear guidance and systematic approach in guidance. Example can be cited of the Wildlife Administration and NDDCU that have experienced frequent changes.

There is a need to amend and improve e*nvironmental and natural resources legislation* with particular regard to the integration of MEA-related concerns. This would call for, among others, an evaluation of institutional mandates and the laws and regulations that spell out their duties. It is believed that the *adoption of EIA regulations* - a priority action would tackle multiple convention-related problems. There is a need to *strengthen extensively enough to build and improve both focal point units* at the institutional and individual levels. Their functions also require a better integration into decision-making at the systemic level, i.e., government policy and decision-making.

There is inadequate awareness among policy and decision-makers of the significance of tackling MEA-related subjects as part and parcel of Sudan's development. It is necessary to promote *environmental awareness programmes that integrate convention-related topics*. There is a need to identify priority areas that require the greatest attention for improving quality and achieving desired goals. This list includes: **N**ational Assembly members, senior managers (policy and decision-makers), NGOs, media, rural communities, students, women and the general public.

There is a need for Sudan's institutions to improve their *capacity to better manage, coordinate and follow up on international aid activities and projects*. It is recently documented that wide-ranging international aid programmes considerably affect environmental management in the Sudan.

The following paragraphs explain the legislative and institutional gaps affecting the implementation of Multilateral Environmental Agreement (*MEA),* as reported in the 2008 National Capacity Self-Assessment (NCSA) for Global Environmental Management, Sudan:[763]

[763] NCSA 2008.

(iii) Legislative and institutional gaps

i) There exists a complete lack of effective strategic land use policy: Policy frameworks related to land use lacks support and reinforcement of a clear, uniform legal framework. Expected legal frameworks consist of revision of sectoral laws, enactment of legislation to manage land use, rangeland and pastures, genetic resources and biodiversity.

ii) Weak institutional capacities at state levels: Pursuant to the provisions of the country's constitution, land, forest and other natural resources are divided in accordance with federal state boundaries and structures, averting the holistic approach required for biodiversity conservation. This has led to diverse policies, incoherent legislation and by-laws, and institutional weaknesses.

iii) It is necessary to amend and improve the legislation, for instance, the Wildlife and Fisheries Acts and to reform wildlife management with a new multi-disciplinary outlook and traditions.

3.3 Extent to which enforcement mechanisms affect conservation and protection of forest resources, and their variations in the Sudan.

[Research question 1(c): To what extent would mechanisms used to enforce, achieve conservation and protection of forest resources; and their variations in the Sudan?]

Agenda 21, Chapter 8 recognises the significance of national policies, strategies and plans to ensure environmental management; protection and conservation are integrated into sustainable development planning and management, just as the need of legal and regulatory frameworks.[764] It likewise features the significance of market-based mechanisms and economic instruments

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[764] Agenda 21 Programme of Action for Sustainable Development UN GAOR, 46th Sess., Agenda Item 21, UN Doc A/Conf.151/26 (1992) : 8.18
(Also: UNCED (United Nations Conference on Environment and Development), United Nations, 'Agenda 21', UNCED, Brazil, June 1992). Available at:
<http://www.un.org/esa/sustdev/documents/agenda21/english/Agenda21.pdf).
[Accessed: 10th May, 2016]. (Agenda 21, 8.13).

for integrating environment into development processes,[765] as well as the necessity for regulatory frameworks to accurately account for environmental capital and value.[766]

In order to strengthen institutional frameworks for sustainable development at the national level, the Johannesburg Plan of Implementation requires States to establish or reinforce existing experts and mechanisms needed for policy formulation, appropriate coordination and implementation and enforcement of laws.[767] It also suggests strategies for promoting sustainable development at the national level by, among others, legislating and enforcing sound and enforceable legislation in support of sustainable development,[768] and development of a strategy for reform and institutional strengthening including by providing reliable infrastructure and by enhancing "*transparency, accountability and fair administrative and judicial institutions*."[769]

Despite this high awareness of the lacuna between commitment and enforcement, international legal instruments have failed to incorporate actual suggestions about how effective enforcement of national environmental laws may be accomplished. In certain situations, legal instruments have enabled the creation of various institutions through enactment empowering them with authority and mandating them to enforce legislation. However, in the Sudan these improvements, have often, due to contending needs, not occurred alongside with investment in employee development, employee's knowledge bases, or equipment. Inability to pay adequate consideration to inspection and monitoring, and inability to set up systems for engaging and deterring violations across the regulated community, induce a deeply rooted culture of impunity. Failure of these provisions of adequate systems has direct adverse effects on sectoral environmental law and policymaking as it weakens established institutions and effectiveness of environmental laws.

In terms of *weak/inadequate enforcement mechanisms*, ***l***ack of transparency and accountability lead to increase levels of abuse of power and corruption. The

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[765] Agenda 21. 8.14

[766] Agenda 21. 8:15

[767] Johannesburg Plan of Implementation (JPOJ). Report of the World Summit on Sustainable Development, 4 September, 2002. UN Doc. A/CONF. 199/20 (2002): Chapter XI, para 162(a). (JPOI para 162).
The Plan can be accessed via
http://www.johannesburgsummit.org/html/documents/summit_docs/2309_planfinal.htm

[768] JPOI, Chapter XI, para 163.

[769] JPOI, Chapter XI, para 163.

Rio Declaration on environment and development (1992) recognizes the vital role of the principles of access to information, and accountability regarding public participation in environmental decision-making in attempts to improve environmental governance. Improvements on this front would contribute to for example, in a number of civil society's capacity to investigate the use of public funds obtained from, and invested in, natural resources management, government's decisions regarding utilization of natural resources, and the participation of government officials and politicians using public resources, including funds from illegal forest activities to for political purposes.

Improvements in transparency and accountability in efforts to promote sustainable forest management have largely contributed to a reduction of corruption in some countries. Examples include: a transparent allocation of public forest concession, information on revenues collected from forestry and monitoring of collection activities, generally available: such as maps of forest land, land ownership, management rights and ther use of forestry recours; information of law enforcement actions for violations of laws, rules or regulations and desired outcomes of law enforcement.

The problems[770] resulting from the complexity of the environmental changes due to, among others *inconcistencies between forest policies and legislation* and related factors call for coordinated environmental policies and legislation bearing in mind the lessons learned from attempts to address environmental degradation and socioeconomic problems. These include the establishment of appropriate organization supported by strategies; the amendment and updating of sectoral policies, legislation and regulations, and the creation and establishment of active monitoring and evaluation systems to examine the effects of policies and actions on the environment, population and the economy.

Several efforts were embarked upon to tackle these scarcities and to integrate the principles and concepts of sustainable development and shifts from traditional economic growth towards an incorporated policy framework embracing the three pillars of sustainable development, namely economic growth, social equity and environmental sustainability. The vision is to reduce poverty, inequality, rationalize production and consumption to sustainable manner, and take actions to adapt to climate change impacts. Against this backdrop, the 1990s witnessed some important accomplishments in the area of environment, including The Directive Principles of National Policy: - a 10-year

[770] In the Sudan, the absence of a national conservation strategy and a national land-use plan led to land grabbing by the continuous expansion of the mechanized farming sector at the expense of the traditional farming sector, with the result that a vicious circle of competition and conflict over the forest resources is continuing.

national strategy called the "Comprehensive National Strategy (CNS) 1992-2002" was adopted.

The principal objectives and policies for the Environmental Strategy; priorities for achieving sustainable development and harmonization of policies and strategies are spelt out in the Comprehensive National Strategy (CNS--1992-2002) in a chapter entitled "Social Development."[771] The CNS for socio-economic development 1992-2002 has been formulated and enacted by the Federal Government supported above legislation. The CNS also stressed the importance of considering the environmental dimension during the process of planning for sustainable development. The CNS is regarded as the provisional Sudan's National Action Plan for Agenda 21,[772] stipulated the allocation of 25% of the total area of the country for forest and trees, called for reconciliation between agricultural crop production and tree cover and thus supported agroforestry systems. Systematic efforts for rehabilitation and protection of natural forests were initiated by conducting the first national forest products consumption survey during 1993-1995 and the first national forest inventory in the country's history during 1995-1997 to establish a benchmark and provide the necessary information needed for policy formulation[773]

According to ADB/EC/FAO[774], the 1989 Act of the Forests National Corporation has undergone amendment through a newly formulated Forestry Act in 2002 creating the National Corporation for Forests and Range. The Forest policy of 1986 is being revised through an FAO supported forestry project together with institutional reorganization to accommodate recent action by the Government towards decentralization. Regarding policy and legislation, one of the determining factors in natural resource management in the Sudan is the federal system (26 States) of government and the decentralization process, which was started in 1993.

The 1998 Sudanese Constitution details principles directing state policy regarding the environment and natural resources. It also spells out areas of jurisdiction of the Federation and the States. Forest resources are classified

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[771] Government of Sudan Comprehensive National Strategy, 101-104 (2nd edn. 1992).

[772] FAO. 'Global forest resources assessment 2000.' Main report. FAO Forestry Paper No.140. Rome, 2001:5.

[773] Abdelnour, Hassan Osman. 'Implementation of national forest programmes in Sudan. A case study.' Paper presented at FAO-Turkey Workshop, Istanbul 11-12 October, 1999. 46 p. See also, Ibrahim 2000.

[774] ADB (African Development Bank)/ EC (European Commission)/ FAO. 'Forestry outlook study for Africa (FOSA): Sub-regional report for North Africa.' FAO, Rome. 2003. 50 p.

within the federal as well as the state lists. According to FAO-FOSA,[775] this resulted in imbalances in the distribution of natural resources, where some states have abundant resources, others lack them. The States considered forests as a revenue-generating sector. This led to conflict between the FNC as the institution responsible about federal forests and the States. It is expected that more powers will be divulged to the States as regards natural resource management. Most probably the responsibility of managing these resources will be amalgamated under the State and local governments.

In accordance with article 28 of the Universal Declaration of Human Rights,[776] a new international social order is needed to materialize human rights, which include the protection of the environment. The current state of the planetary environment requires actions that are more concrete. The Environmental Strategy incorporated the principles and concepts of sustainable development enunciated in the Bruntland's Report as a guiding principle for the future and recognized the common conviction under principle 1 of the 1972 Stockholm Declaration:

> "Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations. In this respect, policies promoting or perpetuating apartheid, racial segregation, discrimination, colonial and other forms of oppression and foreign domination stand condemned and must be eliminated."[777]

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[775] ibid. p. 9.

[776] United Nations Universal Declaration of Human Rights, 10 December 1948, GA res. 217A (III), UN Doc A/810 at 71 (1948), Article 28.

[777]Stockholm Declaration: Declaration of the United Nations Conference on the Human Environment (16 June 1972) U.N. Doc. A/Conf.48/14/Rev. 1, principle 1;
UN General Assembly, United Nations Conference on the Human Environment, 15 December 1972, A/RES/2994;
See also: Document available at:
http://www.refworld.org/docid/3b00f1c840.html [Accessed: 7th December, 2010]. (UN General Assembly 1972); American Society of International Law. Declaration of the United Nations Conference on the Human Environment, 1972.
Available at:

http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=97&ArticleID=1503 [Accessed: 7th December, 2010].

The aforementioned 1972 Stockholm conference was followed 20 years later (in 1992) by the Rio de Janeiro "Earth summit. Ever since, there has been increasing focus across the world on the impact of environmental problems and human rights in particular. From fundamental and basic human right to:

> "Human beings are the centre of the concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature."[778]

stipulated in the first principle of Rio Declaration on Environment and Development of the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992. These developments quickly transcended into recognition to protect the environment not only for the present, but also for the future generation, during the earth summit-the so-called concept of sustainable development.

Principle 1 explicitly proclaimed the existence of a fundamental right to life with dignity in an environment of adequate quality. The Environmental Strategy of Sudan shifted from traditional economic growth towards an integrated policy framework embracing the pillars of sustainable development (economic growth, social equity and environmental sustainability). The vision is to reduce poverty, inequality, rationalize production and consumption to sustainable manner, and take actions to adapt to climate change impacts. Therefore the strategy adopted this principle guaranteeing to the Sudanese citizen the right to a healthy environment.

The strategy considered the international cooperation essential to harmonize environmental actions, which is why a need for international agreements and regulatory measures has increased. On the basis of Brundtland's Report, the strategy recognizes regional and international cooperation for the conservation and development of the environment for sustainable development; protection of natural environment, halting and reversing the over–exploitation of biological resources through appropriate land use especially in marginal and areas affected by desertification; improvement of the environment both in quality and quantity for the Sudanese citizen; alleviation of poverty; rehabilitation of the vegetation cover; preservation of the ecosystem; rationalization of the use of water, soils, forests, range, wildlife and aquatic resources; enhancement of environmental awareness,[779] conducting environmental impact assessment for any project to be

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[778] Rio Declaration on Environment and Development, in Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3 – 14 June 1992, UN Doc. A/CONF.151/26 (Vol. I), 12 August 1992, Annex I, Principle 1.

[779] Government of Sudan Comprehensive National Strategy, 101-102 (2nd edn. 1992).

presented by the investor to the approving agency; and correction of the current malpractices in the on-going projects that adversely affect the environment and promulgation of legislative enactments with deterrent penalties to ensure protection of the environment.[780] The main programme for the execution of this policy consists of awareness, education, extension, inventories, survey, legislation and research.

As a successor to CNS (1992-2002) is the formulation of a 25-year (second CNS 2002-2027) strategy with broad visions efforts targeted at popular participation based on good data and solid information and database to achieve different values and goals including the rational use of natural resources. The 25-year strategy recognizes that Sudan is faced with pressing environmental challenges that need to be tackled. Among these challenges is the concern for the protection of natural resources. Development of a national land-use map has also been proposed to guide development efforts in the country.

The implementation of the CNS (1992-2002) was far below the expectations and there were inherent contradictions in the components of the strategy.[781] However, it is now of paramount importance to complement the different sectoral strategies in a National Sustainable Development Strategy (NSDS). On the basis of this development, the country started a process to formulate NSDS with the main objective of integrating national plans and strategies. Integrated in the NSDS is the Interim Poverty Reduction Strategy (IPRSP). The IPRSP attempts to achieve the development of traditional agriculture which represents one of the main objectives of the NSDS.

An important aspect for the development and sustainability of the forest resources is rational land use policies. A national forest policy should be a part of a national land use policy, assuring balanced forest use and conservation with agriculture and other land uses. In order to reduce the numerous conflicts, and link the three pillars of sustainability, namely social equity, economic viability

[780] ibid. at 102.

[781] FAO Forestry Outlook Study for Africa (FOSA): Sudan, 2000: 9.

and environmental protection,"[782] long term national land use plan is required.[783], [784]

Lessons may be drawn from Article 2 (g) of the Council legislation on the EU Forestry Strategy, which recognises the

> "importance of sustainable forest management for the conservation and enhancement of biological diversity, for the living conditions for animals and plants, and the fact that this sustainable forest management is one of many measures to combat climate change."[785]

Article 13 states that the role of forests as carbon sinks and reservoirs within the European Union can be best ensured through sustainable forest management, while the contribution to the European Union's and member states' climate change strategies to the Kyoto Protocol, and can best be achieved through the protection and enhancement of existing carbon stocks, the establishment of new carbon stocks and encouragement of the use of biomass and wood based products.

Mainstreaming such concepts of ecological sustainability and social-ecological resilience into (environmental) policy and law faces an array of complex challenges, not least considering a constant drive towards (economic) development. Legal instruments and approaches may contribute to sustainable management of natural resources in various ways. The contributions in this dissertation shed light on some of those challenges related both to the design of environmental laws e.g. at international and national levels, and to their implementation and enforcement.

From the foregoing, it may be concluded, that the central idea behind sustainable development, i.e. "meeting the needs of present human society without unduly compromising the capacity of future human societies to meet

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[782] UNCED (United Nations Conference on Environment and Development), United Nations, 'Agenda 21', UNCED, Brazil, June 1992). Available at: <http://www.un.org/esa/sustdev/documents/agenda21/english/Agenda21.pdf> [Accessed: 21st November, 2012]. . Agenda 21, Chapter 10, Section II, Para. 10.1. (UNCED 1992).

[783] Quarrie, Joyce. The Earth Summit 1992. London: The Regency Press Corporation, 1992. 102 pp. (Quarrie 1992).

[784] FAO. Forest resources assessment. Terms and definitions. Forest resources asssessment programme working paper 1. Rome. Forestry Department, FAO 1998. 17 p. (FAO 1998).

[785] Article 2 (g) of the Council legislation on the EU Forestry Strategy

their needs,"[786] applied to policy-making and operational management, means: to protect the long-term productivity of forest ecosystems--to the best of humans' biological, social, and economic understanding.

The Sudan's mixed, pluralistic legal order requires a nuanced approach to cultural expertise in litigation. Clarifying *various ambiguities regarding forest laws* is of paramount importance. For just as weak enforcement of laws, contradictory laws and conflicting provisions among different pieces of legislation complicate managing forests in the Sudan today. In certain cases, contradictory laws even outlaw the traditional livelihood strategies of local stakeholders. On the other hand, effectively enforced rules, regulations and policies, clearly defined terms and laws that work haemoniously together may contribute meaningfully for further development of the forests and other natural resources in the Sudan.

Developing mechanisms for participation and participatory law making is of vital importance The idea of public participation – or procedural environmental rights – is nowadays widely accepted as a necessary ingredient of environmental policy and law in the industrialized world. It is also generally seen to contribute significantly to the legitimacy of environmental policy and law. These rights may refer to the right to obtain information on a public document including environmental information, the right to be heard (including the right to take part in the preparation of a matter by e.g. presenting opinions on it), and the right of access to courts.[787] In the discourse concerning these rights it has been presented e.g. that the right decisions are more likely to be made in open, democratic procedures, than closed ones.[788] This type of connection has also sometimes been denied, or at least seen as being based on mere belief with no empirical foundation.[789]

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[786] Report of the World Commission on Environment and Development: Our Common Future, 4 August 1987 (A/42/427): Chapter 2 (1). (WCED 1987).

[787] Kumpula, Anne: Ympäristö oikeutena (Suomalaisen Lakimiesyhdistyksen julkaisuja 2004, A-sarja N:o 252) pp. 13-14.

[788] See Saward, Michael: 'Green Democracy?' in Andrew Dobson & Paul Lucardie (eds.), The Politics of Nature. Explorations in Green Political Theory (Routledge, London 1993) pp. 63-80, at pp. 76, 84-88, who also points out that substantive rights are, in fact preconditions to the realisation of democracy; see also Kumpula 2004 pp. 16-17.

[789] See e.g. Määttä, Tapio: 'Ympäristö eurooppalaisena ihmis- ja perusoikeutena: kohti ekososiaalista oikeusvaltiota' in Liisa Nieminen (ed.), Perusoikeudet EU:ssa (Lakimiesliiton kustannus, Helsinki 2001) pp. 265-362, at pp. 287-288.

The use of a participatory approach to forest law-making is benefical in advancing transparency, minimize the potential for corruption, guarantee better equity, limit the undue impact of privileged groups and urge parties to pursue lawful necessities. It will likewise empower stakeholder groups to voice their anxieties and defend their rights from arbitrary unilateral decisions by governments. Article 1 Objective) of the United Nations Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention), 25 June 1998, United Nations, Treaty Series, vol. 2161, p. 447 states that:

> "In order to contribute to the protection of the right of every person of present and future generations to live in an environment adequate to his or her health and well-being, each Party shall guarantee the rights of access to information, public participation in decision-making, and access to justice in environmental matters in accordance with the provisions of this Convention."[790]

- (Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention), 25 June 1998, United Nations, Treaty Series, vol. 2161, p. 447).

The Aarhus Convention stressed that every person has a right to a healthy environment as well as his or her duty to protect it. It stressed a number of rights of the public, covering individuals and associations as regards the environment. The Parties to the Convention are expected to introduce the required provisions in order to allow different levels of public authorities, namely local, regional and national authorities; with the expectation that execution of these rights to make it more effective.

The Aarhus Convention allows:

- The right of everyone to have access to environmental information from public authorities. This may consist of information related to environmental status, policies or actions adopted or condition of health and safety of human beings. Applicants are permitted to be provided with the necessary information within a month of the request. Applicants need not provide any reason during the application process. Besides, public authorities are expected, under the Aarhus Convention, to circulate environmental information under their control;

[790] Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention), 25 June 1998, United Nations, Treaty Series, vol. 2161, p. 447

- The right to be involved in environmental decision-making process. The public authorities can make provisions that may allow the public, for example, express opinions on, proposals for projects related to the environment, or plans and programmes affecting the environment,

The right to comment on procedures to challenge public decisions made without the prior consideration of the two rights mentioned above or environmental law in general. In the Sudan, a cognizant action to guarantee the incorporation of different perspectives could be completed by supporting a participatory approach in the plan of the new forest laws. Participatory forest management and in forestry policy is vital in order to formulate a policy that recognizes people's needs and capacities.

Forestry for local community development

t is an aspect of sustainable forest management directed to enhance the livelihood and well-being of rural people and to preserve their cultural heritage through their involvement in the management and implementation of forest projects. This concept of community participation has gained momentum since the World Conference on Agrarian Reform and Rural Development.[791] Recalling the Council of Europe, Resolution 736 (1980) s.9 (e) on the World Conference on Agrarian Reform and Rural Development, Rome, 12-20 July, 1979 and the principle contained therein:

> "that any successful agricultural policy will need the active participation, from the inception to the implementation of projects, of farmers themselves or representatives of associations acting on their behalf, and that governments should actively encourage the establishment of representative rural organisations pursuing the economic and social advancement of their members"[792]

Recently the forest principles recognize the indigenous and local knowledge in forest management, There is now a growing realisation that local people have a wealth of experience and knowledge of their environment. To promote forestry for rural development the usage rights and appropriate forest tenure such as private and communal forest should be recognized.

There is a need for *impact analysis framework:* Undoubtedly, many forests gazetted and demarcated forest boundaries during the colonial periods are still

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[791] World Conference on Agrarian Reform and Rural Development, Rome, 12-20 July, 1979; Council of Europe, Resolution 736 (1980) s.9 (e).

[792] ibid.

intact today. Colonial powers kept tribal and local people from forests through the exercising force.[793] Enforcement[794] was also relatively easy at this time, because the human and animal populations and consequent forest pressures were low.[795] As Paglia[796] rightly argued, colonialism legitimized patterns of coercion, violence and exploitation during their occupation. She added that these strategies had mostly been employed by the colonial powers to "tame" those populations, who tried to resist their rule.

Alienation and marginalization of Sudanese from their ancestral lands resulted in disturbances, land access disputes that have weakened the livelihoods and culture even further. Certain themes (commercial use, state forest control) were presented as 'natural' focus of forest management, while other themes (subsistence use, local forest control) were marginalized. Restricting the rights, usage and control of forests by tribal and local people certainly induced resistance, which was curbed through forced removals, fines, and even worse punishments, or accommodated by permitting certain forest-based activities to continue as 'privileges', subject to strict controls.[797]

Historical injustices are shown by land complaints, which may be traced back to colonial land policies and laws, that led to mass dispossession of communities of their resources e.g. land, and about which to date grievances have not yet been adequately addressed. These grievances occurred because of, among others, land adjudication and registration and treaties/ agreements between local communities and their British colonizer. The grievances remain unsettled because successive post-independence Governments have failed to resolve them

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[793] ibid.

[794] Forest law enforcement in this study, potentially includes the enforcement of all legislation related to forests and forest-dependent peoples, including international laws, constitutional provisions, land tenure laws, human rights laws, employment laws, forestry laws, wildlife laws and protected area laws. We distinguish this from forestry law enforcement, in which only forestry laws are applied, often without much consideration of the wider legal framework in which these laws are implanted.

[795] Odera 2004.

[796] Paglia, Pamela. Ethnicity and Tribalism: Are these the Root Causes of the Sudanese Civil Conflicts? African conflicts and the Role of Ethnicity: A Case Study of Sudan. 2009. Available at: http://www.africaeconomicanalysis.org/articles/pdf/sudan0807.pdf [Accessed: 4th October, 2012].

[797] Odera Jeff. Lessons learnt on Community Forest Management in Africa. A report prepared for the project: Lessons Learnt on Sustainable Forest Management in Africa, Nairobi, Kenya, and 2004:10. (Odera 2004).

in a holistic manner, while, the issue was exacerbated by the lack of clear, relevant and comprehensive policies and laws.

A significant factor in reinforcing forest law compliance is to study the policy and legal framework governing the forest sector and to disregard necessities that are difficult to comply with or conflicting. This undertaking must focus on an examination of how regulations influence participants in the forest sector, inrelation to their budgetary, specialized and administrative capacity to pursue legitimate prerequisites and as far as their needs.

The financial effects of regulation on the major partners can be examined utilizing standard financial analysis methods. In situations where regulations lessen profitability accordingly blocking realistic compliance, the government may think about offering financial incentives and/or reward to encourage forest workers with voluntary compliance with the law.

In terms of *insecurity of land tenure and access to credit:* First and foremost, there is a need to generate political will to tackle insecurity of tenure while the second raises chances of indefinite displacement of those denied security of tenure by more powerful interest groups. Tenure arrangements for project participants should be carefully spelled out in the written project agreements for the partnership with government, pending more far -reaching land policy and legislation for project activities.[798]

Lack of land tenure security limits access to credit for many farmers, who lack collateral security in the form of land. The unfavourable land laws, land use and tenancy laws and regulation, coupled with weak infrastructure, do not encourage the private sector to invest in inaccessible areas or in areas with land tenure conflicts. These circumstances call for a need for project planners to pay special attention to security of tenure issues.[799] This will be especially applicable

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[798] Bruce, John W. Country profiles of land tenure: Africa, 1996. Research Paper No. 130. Land Tenure Center, University of Wisconsin-Madison, 1998.

[799] The case of Endorois people against Kenya which saw the African Commission on Human and Peoples' Rights issuing a landmark 2010 decision exemplifies the fact that, when titling of forest land does result in a complete marginalization of forest dwellers (owners) from a benefit stream, sustainable management practices may be undermined. Therefore, reinforcing communal land tenure security is in line with human and indigenous people's rights and may provide a viable alternative to community based forest management regimes which may promote economic development goals. The African Commission ruled in the favour of Endorois that 'there had been a violation of Articles 8 (right to freedom of conscience), 14 (right to property), 17 (right to education and culture), 21 (right to free disposition of wealth and natural resources, and restitution and compensation for dispossessed peoples) and 22 (right to economic, social and cultural development) of the African Charter on Human and Peoples' Right' (African

in the case where major private investments are expected and where major escalations in the cost of land are expected owing to project activities. [800]

Multiple land use disputes: Under Sudan constitutional provisions, the country has primary legal responsibility for environment and natural resources protection and management as spelt out in the 2005 Interim National Constitution of the Sudan. This Interim National Constitution of the Republic of the Sudan does explicitly refer to the environment and environmental rights as stated below: Chapter II, paragraph 11(1), states that:

"The people of the Sudan shall have the right to a clean and diverse environment; the State and the citizens have the duty to preserve and promote the country's biodiversity."[801]

While Chapter II, paragraph 11(2) states:

> "The State shall not pursue any policy, or take or permit any action, which may adversely affect the existence of any species of animal or vegetative life …"[802]

Even though the right to a clean and diverse environment is a constitutional right in the Sudan, there seems to be a general absence of willpower and capacity on the side of the Sudanese government that occurred over time and contributed to lack of a mandated mechanism of compliance, implementation and

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(Banjul) Charter on Human and People's Rights: (Adopted 27 June 1981, OAU Doc. CAB/LEG/67/3 rev. 5, 21 I.L.M. 58 (1982), entered into force 21 October 1986). *See also:* http://www.achpr.org/instruments/achpr/ [Accessed: April 15, 2014]; Pritchard, J., Lesniewska, F., Lomax, T., Ozinga, S. and Morel, C. Securing community land resource rights in Africa: A guide to legal reform and best practices. FERN, FPP, ClientEarth and CED. 2013: 9, 11).

See also court decision: 276/03: Centre for Minority Rights Development (Kenya) and Minority Rights Group (on behalf of Endorois Welfare Council) / Kenya. Available at: http://www.achpr.org/files/sessions/46th/comunications/276.03/achpr46_276_03_eng.pdf [Accessed: March 10, 2014].

[800] Bruce, John W. Country profiles of land tenure: Africa, 1996. Research Paper No. 130. Land Tenure Center, University of Wisconsin-Madison, 1998.

[801] Government of the Sudan. The Interim National Constitution of the Republic of the Sudan, Government of the Sudan. 2005, Chapter II, paragraph 11(1). (Government of the Sudan 2005).

[802]Government of the Sudan. The Interim National Constitution of the Republic of the Sudan, Government of the Sudan. 2005, Chapter II, paragraph 11(2). (Government of the Sudan 2005).

enforcement of relevant laws. The foregoing statement is particularly clear if we take into consideration serious allegation that the Sudanese Government and *Janjaweed* (nomadic ethnic militias or government-backed militias) operated together to combat a rebel insurgent activity in Darfur, located in Western Sudan. These *Janjaweeds* used the scorched earth as one of their military policies and fighting methods. As the army retreated, they deliberately destroyed all that they came across, including natural resources, in their way, leaving nothing but fire, widespread destruction of property and resources and scorched earth in order that an invading enemy cannot make use of them. These methods result in environmental degradation.

Multiple land use disputes and development of the resources are simply one of the many ways that conflict manifests itself in a society, Sudan. Conflict resolution is often done through dialogue and elders' meetings sometimes witnessed by high ranking officials. The situation in Darfur exemplifies this circumstance. Comprehensive and in-depth understanding of the nature of conflicts in Darfur is becoming imperative in the conflict resolution. The causes are deeply rooted in the tradition of the tribes whose livelihood depends on agriculture, pastoralism and water resources. Scarcity of land, pasture and water has been the original causes of conflicts. Conflicts originating from disputes between 1950 and 1970s in Darfur were conflicts mostly associated with land use disagreements within and between the nomadic groups, and the settled agropastoralists, over access to pasture and water or due to any other social reasons between tribes.

The origin of Darfur conflict from 2003 to present also goes back to land disputes between semi-nomadic livestock herders and those who practice sedentary agriculture.[803] As argued by Bechtold,[804] the conflict may not only be due to race or religion, as the population of Darfur is predominantly Muslim, but about resources as the nomadic tribes facing drought are going after the territory of sedentary farmers. An important source of waters that pass through various mountain communities supporting agriculture and livestock of the sedentary and nomadic groups has its origin from Jebel Marra Mountains.

Within these communities as well as between them and the communities in the lowland are marred with conflicts. This calls for measures in assessing and development of land management system compatible with community's conflict resolution. Such measures may comprise support to small-holder farmers

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[803] Strauss, Anselm and Corbin, Juliet. *Basics of qualitative research: Grounded theory procedures and techniques.* Newbery Park: Sage 1990. (Strauss 1990).

[804] Bechtold, Peter K. "A History of Modern Sudan." *Middle East Journal*, 2009. 63(1): 149 – 150. (Bechtold 1989).

practicing traditional agriculture, vertical increase in agricultural productivity, improvement of rangeland carrying capacity, development of forest resources and genuine participation of the stakeholder groups in the management system of the resources.[805] The more people become aware of forests and woodlands as common property in which all people have an interest, the higher the chances that deliberate destruction and arson on these lands will diminish.

Principle 2 of the UN 1972 Declaration[806] seeks to establish a coherent framework for safeguarding natural resources for the benefit of present and future generations. It does so through management activities that must be determined through careful planning or resources management, as found suitable. It stresses that:

> "The natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate. "[807]

Consecutive measures in favour of development have been emphasized in Principle 3 of the (UNCED) Rio Declaration on Environment and Development as:

> The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.[808]

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[805] Elsiddig, Elnour. A. *Jebel Marra: The potentials for resources and rural development in Darfur*. Khartoum: Al Gawda Printing and Publishing, 2007. 232 p. (Elsiddig 2007).

[806] Stockholm Declaration on the Human Environment, in Report of the United Nations Conference on the Human Environment. 5-16 June, 1972, U.N. Doc. A/Conf.48/14/Rev. 1(1973), Principle 2.

[807] Stockholm Declaration: Declaration of the United Nations Conference on the Human Environment (16 June 1972) U.N. Doc. A/Conf.48/14/Rev. 1. Chapter I (1), Principle 2 of 1972 Stockholm Declaration (Stockholm 1972);
United Nations Report. Report of the United Nations Conference on the Human Environment, Stockholm, 5-16 June, 1972, Geneva: United Nations. (A/CONF, 48/14/Rev.1), 1972: Chapter I (1), Principle 2 of 1972 Stockholm Declaration.

[808] United Nations General Assembly. Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992. A/CONF.151/26

The duty of man to take care of the environment is inextricably linked to the protection of human rights. According to Castro,[809] the Stockholm Declaration of 1972 was written in the language of universality, with the recommendation that every human being is entrusted with a responsibility for the protection and the improvement of the environment. The link recognized in the Stockholm document remarkably comprised all the three generations of human rights, namely freedom, dignity and equality as per the civil and political rights claims in the first generation rights, sound quality living as per the social, economic and cultural rights or the so-called second generation rights, and lastly the solidarity claims of the third generation of human rights (right to development). It is worth mentioning that a crucial new development in the Stockholm document regarding human rights law is emphasis laid on the future generation.[810] One of the main motivations behind the universality or globalization of human rights protection and of environmental protection is founded on the desire to protect *erga omnes* norms. Principle 10 of the Rio Declaration (1992)[811] stressed that "*environmental issues are best handled with participation of all concerned citizens*".[812] In fact, one of the principal goals of the UN Charter is to protect the human race. It seeks: to

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(Vol.1). (United Nations General Assembly 1992): Principle 3 of the (UNCED) Rio Declaration on Environment and Development.

[809] Castro, José Nieves L. The Right to a Healthy Environment. In: Hollo, Erkki J. (ed.), "Environmental Law Studies 2012: Human Rights and the International Environmental Law," *The Journal of Environmental Law (Ympäristöjuridiikka)*, 2012, 36: 11-28). (Castro 2012).

[810] See Stocholm 1972: Principle 1 of 1972 Stockholm Declaration.

[811] Rio Declaration on Environment and Development, in Report of the United Nations Conference on Environment and Development, UN Doc. A/CONF.151/26 (Vol. I), 12 August 1992, Annex I, Principle 10.

[812] Many states recognize customary land rights in the constitution or national law but such laws can lack mechanisms of enforcement. In accordance with paragraph (9) of article 171 of South Sudan's new Constitution, for example, communities having rights to land shall participate in decisions that may affect their rights in lands and resources. This being the case however, in 2008, government of South Sudan Ministry of Wildlife granted the United Arab Emirate based tourism and conservation investment company, Al Ain Wildlife a 2 million hectares lease for a tourism development project in Boma national park, The lease period was 30 years agreement with government of South Sudan Ministry of the wildlife. The Ministry of Wildlife failed to involve the community in the decision-making process.

> "save succeeding generations from the scourge of war … and reaffirm faith in fundamental human rights, in the dignity and worth of the human person …"[813]

The protection and improvement of man's environment thus arise directly out of a vital need to protect human life, to assure its quality and condition, and to ensure the prerequisites indispensable to safeguarding human dignity and human worth and the development of the human personality. Although the term "common concern of humanity" has been used in many ways and understood differently at different times, it presents a significant challenge for historical work in this area. At any rate, assertion that a subject is a common concern of humanity must imply that it is in the public domain and under the exclusive domestic jurisdiction of states.[814]

Common concerns describe resources that are not spatial, and may be found in a specific location but may occur within or outside sovereign territory.[815] In fact, as can be read in latter part of this chapter, there are historical precedents reflecting the notion of "common concerns" or a "global set of values and interests" independent of the interests of states.[816] There is a notable historical precedent in the use of this notion of common concerns with reference to "the laws of humanity, and the dictates of the public conscience" as the sources of principles of the law of nations, evidenced by Martens Clause in the Preamble to the 1907 Hague Convention (IV).[817]

The locals were excluded from participating in decision-making process. There was no environmental and social impact assessment of the project prior to the agreement. Promises by the company to provide employment, schools, health centers, airstrips, boreholes, housing, roads and model village have not materialized. As Corrine points out, other areas can experience resistance to recognition of customary land rights, making the process of allocating title complicated and/or overwhelmed with disputes (Corrine, Lennox. Natural resource development and the rights of minorities and indigenous peoples. In: Beth Walker. State of the World's Minorities and Indigenous Peoples 2012. Minority Rights Group International.2012: 16). (Corrine 2012).

[813] United Nations, Charter of the United Nations, 24 October 1945, 1 UNTS XVI, *See also:* Document available at: http://www.refworld.org/docid/3ae6b3930.html [Accessed 22nd April, 2012] (United Nations Charter 1945).

[814] Shelton, Dinah. Common concern of humanity. *Envtl. Pol'y & L.* 39 (2009): 83. p. 40. .(Shelton 2009).

[815] Shelton p. 35.

[816] Shelton 2009: 34

[817] Convention (No. IV) Respecting the Laws and Customs of War on Land, with Annex of Regulations (The Hague, Oct5. 18, 1907), 36 Stat. 2277 (1911).

Circumstances reflecting some common concerns of humanity can be seen in the applicability of human rights law in the protection of individuals beyond the context of armed conflict. Other examples could be cited of international criminal law, in which crimes may be perpetrated as part of widespread systemic attacks against individuals and constitute crimes against humanity. War crimes and gross violations of international human rights law – including war crimes, genocide, and torture. Individuals may be prosecuted for any serious crime against international law. The aforementioned crimes reflect some common concerns of humanity on the basis of the principle that these crimes may cause harm to the international community or international order itself which may call for individual states to act to protect.[818]

Common concern differs from the concepts of common areas and the common heritage of mankind. International law has long taken recognition of those areas outside those that involve common concerns of humanity. Examples of aforementioned areas are: The high seas, resources on or under the deep seabed, outer space, the moon and other celestial bodies, as well as the Antarctica, which lie outside national boundaries and are not subject to the national jurisdiction of a particular state but are shared by other states and where coherent and comprehensive regulation must be international, because no national entity can claim sole jurisdiction over these physical areas.

The history of "common heritage of mankind" in some cases likewise called the common heritage of humankind, common heritage of humanity or common heritage principle defines the concept that certain global commons or elements (cultural and natural) regarded as beneficial to humanity in general ought not be unilaterally exploited by individual states or their nationals, nor by corporations or different elements, but instead ought to be held in trust or exploited under some kind of international plan or administration for the advantage of humanity (or future generations) in general. By definition, a common concern requires international attention and requires new types of law-making, compliance and enforcement mechanisms.[819] As an international law concept it is important, first for what it does not include, which is a reference to states.[820] The 1972 World Heritage Convention[821] employs the phrase heritage to describe cultural and natural resources, but considers them as a common concern, not as common

[818] Shelton p. 34

[819] ibid.

[820]Shelton 2009:33

[821] Convention Concerning the Protection of the World Cultural and Natural Heritage, 23 November, 1972, 1037 UNTS 151; 27 UST 37.

heritage. The Convention acknowledged in the seventh paragraph of its preamble the principle of common concern of humanity by stating:

> "Considering that parts of the cultural or natural heritage are of outstanding interest and therefore need to be preserved as part of the world heritage of mankind as a whole,"[822]

The 1972 World Heritage Convention preamble, paragraph 7, is basically concerned about the responsibility of the international community as a whole to ensure participation in the protection of

> "the cultural and natural heritage of outstanding universal value, by the granting of collective assistance which, although not taking the place of action by the State concerned, will serve as an efficient complement thereto,"[823]

Amid the second half of the 20th century, states planned to make a widespread political organisation to keep up worldwide peace and security and enhance the prosperity of all humankind. This aspiring exertion could just continue by characterizing spaces of basic concern. The universal acknowledgment of human rights and crucial opportunities constituted an initial step of vital significance in building up the idea of a worldwide concept of an international community based upon the values of humanity. Thus, learning that the biosphere is the main known place in the universe where life is conceivable prompted the development of protection of the human environment as a common concern of humanity[824].

The term "common interest" has been used in early international treaties regarding the exploitation of shared natural resources. The International Convention for the Regulation of Whaling (1946 Whaling Convention)[825] acknowledged in its preamble the

> "interest of the world in safeguarding for future generations the great natural resources represented by the whale stocks" [826]

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[822]Convention Concerning the Protection of the World Cultural and Natural Heritage, 23 November, 1972, 1037 UNTS 151; 27 UST 37., Preamble , para. 7.

[823]Convention Concerning the Protection of the World Cultural and Natural Heritage, 23 November, 1972, 1037 UNTS 151; 27 UST 37, Preamble, para. 8.

[824] Shelton 2009:35

[825] International Convention for the Regulation of Whaling, Washington, 02 December, 1946, 62 Stat. 1716; 161 UNTS 72, Preamble. (1946 Whaling Convention).

[826] ibid,

and that it is in the common interest to accomplish the ideal level of whale stocks as quickly as could be expected under the circumstances. Before long states started to perceive that it was to their common interest to take preservation measures to secure exploited fish stocks.

Article II (8) of the 1952 Tokyo Convention for the High Seas Fisheries of the North Pacific Ocean (May 9, 1952)[827] stresses the principle of "common concern," in the interests of the contracting parties, in attempts to make certain the maximum sustained productivity of the fishery resources of the North Pacific Ocean:[828]

> "Each Contracting Party may establish an Advisory Committee for its national section, to be composed of persons who shall be well informed concerning North Pacific fishery problems of common concern. Each such Advisory Committee shall be invited to attend all sessions of the Commission except those which the Commission decides to be in camera."[829]

The 1959 Antarctic Treaty (Washington, Dec. 1, 1959).[830] also acknowledged internationally the environment as a "common concern of humanity "in its preamble, para. 2, that:

> " it is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord."[831]

> Article IX of the 1959 Antarctic Treaty (Washington, Dec. 1, 1959) consents to exchange information, consult together on:

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[827] International Convention for the High Seas Fisheries of the North Pacific Ocean with a Protocol relating thereto' signed by Canada, the United States, and Japan at Tokyo on At Tokyo, May 9, 1952; Ratifications Exchanged June 12, 1953; In Force June 12, 1953.
[828] Shelton 2009: 36).
[829]The International Convention for the High Seas Fisheries of the North Pacific Ocean, with Annex and Protocol, May 9, 1952; 4 UST 380; Article II(8).
See also: "International Convention for the High Seas Fisheries of the North Pacific Ocean with a Protocol Relating Thereto." The American Journal of International Law, vol. 48, no. 1, 1954, pp. 71–81.
[830] The Antarctic Treaty (Washington, Dec. 1, 1959), 12 UST 794 / 402 UNTS 71.
[831] The Antarctic Treaty (Washington, Dec. 1, 1959), 12 UST 794 / 402 UNTS 71, Preamble, para. 2. (The Antarctic Treaty entered into force June 23, 1961).

> matters of common interest pertaining to Antarctica and formulating and considering, and recommending to their governments, measures in furtherance of the principles and objectives of the Treaty …[832]

The Antarctic Treaty system further favoured the development of adoption of the Canberra Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR)[833] which also acknowledged that:

> "it is in the interest of all mankind to preserve the waters surrounding the Antarctic continent for peaceful purposes only and to prevent their becoming the scene or object of international discord."[834]

The 1991 Madrid Protocol on Environmental Protection to the Antarctic Treaty[835] (Madrid protocol) followed the Antarctic Treaty system and also recognised matters of common interest pertaining to environmental protection. Its preamble acknowledges in its eighth paragraph, the principle of "interest of mankind as a whole" by stating:

> "Convinced that the development of a comprehensive regime for the protection of the Antarctic environment and dependent and associated ecosystems is in the interest of mankind as a whole"[836]

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[832] The Antarctic Treaty (Washington, Dec. 1, 1959), 12 UST 794 / 402 UNTS 71, Article IX.

[833] The Convention on the Conservation of Antarctic Marine Living Resources, 20 May, 1980. 33 UST 3476; 1329 UNTS 48.

[834] The Convention on the Conservation of Antarctic Marine Living Resources, 20 May, 1980. 33 UST 3476; 1329 UNTS 48, Preamble, 10.

[835]Protocol on Environmental Protection to the Antarctic Treaty, 4 October, 1991, 30 I.L.M. 1461.

[836] Protocol on Environmental Protection to the Antarctic Treaty, 4 October, 1991, 30 I.L.M. 1461, Preamble, para. 8. *See also*: the UN General Assembly Resolution on the Question of Antarctica, Dec. 6, 1991, G.A. Res 46/41, UN GAOR, 46th Sess. Supp. No 49 at 83, UN Doc. A/46/49 (1992) which implicitly expresses that Antarctica constitutes a common concern for all the states.

Prior to the 1972 Stockholm Conference,[837] the 1968 African Convention on the Conservation of Nature and Natural Resources[838] acknowledges in the sixth paragraph of its preamble the concept of "future welfare of mankind" by stating:

> "Desirous of undertaking individual and joint action for the conservation, utilization and development of these assets by establishing and maintaining their rational utilization for the present and future welfare of mankind;"[839]

The Preamble, para. 6 of the 1968 African Convention on the Conservation of Nature and Natural Resources,[840] recognised the importance of the contracting states to agree to individual and collective action for the conservation, utilization and development of natural resource base, with significant consideration of the present and "future welfare of mankind."[841] The doctrine of "future welfare of mankind" is considered to encompass the concerns for future generations. It stresses the temporal dimension of the notion of common interest of mankind.

The 1979 Bonn Convention on the Conservation of Migratory Species of Wild Animals acknowledges in the first paragraph of its preamble the concept of for the good of mankind, by stating:

> "that wild animals in their innumerable forms are an irreplaceable part of the earth's natural system which must be conserved for the good of mankind."

Moreover, the notion of common interest of mankind, similarly recognized by other international environmental law treaties (see above), is observed at the basis of the concept of "common heritage of mankind." as spelt out in Article II(1) of the 1967 Treaty on Principles Governing the Activities of States in the

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[837] Report of the United Nations Conference on the Human Environment, Stockholm, 5-16 June 1972, A/CONF.48/14/Rev.1.

[838] Organization of African Unity Convention: African Convention on the Conservation of Nature and Natural Resources (adopted 15 September 1968, entered into force 16 June 1969) 1001 UNTS 3 (African Convention on the Conservation of Nature and Natural Resources Algiers, Sept. 15, 1968, 1001 UNTS 3, Preamble, para. 6).

[839] African Convention on the Conservation of Nature and Natural Resources Algiers, Sept. 15, 1968, 1001 UNTS 3, Preamble, para. 6.

[840] African Convention on the Conservation of Nature and Natural Resources Algiers, Sept. 15, 1968, 1001 UNTS 3.

[841] African Convention on the Conservation of Nature and Natural Resources Algiers, Sept. 15, 1968, Algiers, Sept. 15, 1968, 1001 UNTS. 3, Preamble, para. 7.

Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies,[842] as follows:

> "The moon and its natural resources are the common heritage of mankind …"[843]

Similarly, the notion of common interest of mankind as acknowledged by other international environmental law treaties (see above), is observed at the basis of the concept of "common heritage of mankind." as stressed in the preamble, para. 7 of the 1982 United Nations Convention on the Law of the Sea (UNCLOS):[844]

> "Desiring by this Convention to develop the principles embodied in resolution 2749 (XXV) of 17 December 1970 in which the General Assembly of the United Nations solemnly declared inter alia that the area of the seabed and ocean floor and the subsoil thereof, beyond the limits of national jurisdiction, as well as its resources, are the common heritage of mankind, the exploration and exploitation of which shall be carried out for the benefit of mankind as a whole, irrespective of the geographical location of States."[845]

Article 136 also of the 1982 United Nations Convention on the Law of the Sea (UNCLOS) emphasised, with reference to this convention, the "Area" (meaning, the seabed and ocean floor and subsoil thereof) [846] and its resources,[847] noted of being beyond the limits of national jurisdiction, are:

> "the common heritage of mankind.[848]

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[842] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 27 January, 1967, 18 UST 2410, 610 UNTS 205, Article II(1).

[843] Article II(1) of the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space

[844] United Nations Convention on the Law of the Sea, 10 December, 1982, 1833 UNTS 3.

[845] United Nations Convention on the Law of the Sea, 10 December, 1982, 1833 UNTS 3; Preamble, para. 7.

[846] United Nations Convention on the Law of the Sea, 10 December, 1982, 1833 UNTS 3, Article 1.

[847] ibid.

[848] United Nations Convention on the Law of the Sea, 10 December, 1982, 1833 UNTS 3; Article 136.

The Convention on the Conservation of European Wildlife and Natural Habitats,[849] adopted many months after the 1979 Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention)[850] joins the concepts. As an origin of the criteria recognized by the United Nations, it is possible to consider mankind as a subject of international law.[851] This idea emerged progressively from expressions such as "common heritage of mankind"[852]

With respect to environmental law vis-a-vis the obligations *erga omnes* concept,[853] it is again the 1972 Stockholm Declaration on the Human Environment[854] that laid the basis in this field. Principle 18 of the Stockholm Declaration[855] in mandatory language refers expressly to the "common good of mankind". Most Nuclear proliferation treaties have ever since had to make consideration of this clause as a guiding principle. The 1974 Convention for the Prevention of Marine pollution from Land-Based Sources,[856] the 1977 Convention on the Prohibition of Military or any other Hostile Use of Environmental Modification Techniques,[857] the 1987 Montreal Protocol on

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[849] Convention on the Conservation of European Wildlife and Natural Habitats, 19 September, 1979, 1284 UNTS 209; Eur. T.S. No. 104 (1982); 1982 Gr. Brit. T.S. No. 56 (Cmd. 8738).

[850] The Convention on the Conservation of Migratory Species of Wild Animals, 23 June, 1979, 1651 UNTS 333.

[851] Shelton 2009:37.

[852] Castro 2012, 36: 11-28.

[853] The term *erga omnes* (Latin: “towards all”) in international law describes the idea that certain obligations owed by a state towards the international community or all other states, in general are by their very nature “the concern of all states” and on the basis of the importance of rights in law, all states must be capable of exercising jurisdiction over them. In this context, states may apprehend an alleged perpetrator, regardless of his or her nationality, or place of commission of the crime, and try them under their own domestic procedures. In other words, *erga omnes* obligations are in effect, universal rights towards everyone, which become enforceable to anyone who infringes on them.

[854] Stockholm Declaration on the Human Environment, in Report of the United Nations Conference on the Human Environment, U.N. Doc. A/Conf.48/14/Rev. 1(1973).

[855] Stockholm Declaration on the Human Environment, in Report of the United Nations Conference on the Human Environment, U.N. Doc. A/Conf.48/14/Rev. 1(1973); Principle 18.

[856] Convention for the Prevention of Marine Pollution from Land-Based Sources, 4 June, 1974, 1546 UNTS 119.

[857] Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 10 December, 1976, 31 UST 333, 1108 UNTS 152.

Substances that Deplete the Ozone Layer[858] are examples of environmental treaties that have made consideration of the clause concluding the final draft treaty.

With reference to the treaty for example, the reasoning was that action be taken not only in trans-boundary pollution issues which immediately affected state interests, but in other areas that state interests appeared not to be so visibly affected. This is the tendency in most environmental law treaties, especially those dealing with climate change and he protection of the ozone layer. In either case, the spirit is that of the common good of all that is that principles which have a general environmental character have universal competence and thus apply on the territory of states irrespective of borders. As a result, the term common good of all or common interest is thence used in environmental law to denote zones that are not under any national territorial competence. Similarly, according to the World Charter for Nature:[859]

> "… protecting natural systems, maintaining the balance and quality of nature and conserving natural resources..," should be ensured "in the interests of present and future generations"[860]

The document of the World Charter for Nature has succinctly attributed the environmental degradation to unnecessary consumption and mismanagement of natural resources.[861] It has also emphasised that competition for limited resources is a potential cause for conflict whereas the conservation of nature and natural resources play a key role in promoting justice and the maintenance of sustainable peace[862] The document concludes by pointing out the relevance of adopting proper measures to protect nature in all spheres of life-"*national and international, individual and collective, private and public levels*.[863]

The World Charter for Nature, 1982[864] clearly shed light on the importance of conserving biodiversity. It recognises that every form of life is unique in its

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[858] Montreal Protocol on Substances that Deplete the Ozone layer (Montreal Protocol), 16th September 1987. 1522 UNTS 3 (1987).

[859] World Charter for Nature A/RES/37/7, 48th plenary meeting, 28 October 1982. (World Charter for Nature 1982).

[860] ibid.

[861] ibid.

[862] World Charter for Nature 1982), Annex C.

[863] World Charter for Nature 1982).

[864] United Nations General Assembly. World Charter for Nature, 48th Plenary Meeting, 28 October, 1982. A/RES/37/7. 1982 (World Charter for Nature 1982).

own way and deserves respect, irrespective of its value to man.[865] It also stresses that: Significant long term "*benefits from nature depend upon the maintenance of essential ecological processes and life support systems, and upon the diversity of life forms (…*)."[866] The World Charter[867] made a passage easier for the 1992 Convention on Biological Diversity[868] which clearly declares the principle of common concern of humanity[869] by stating:

> The importance of biological diversity for evolution and for maintaining life sustaining systems in the biosphere," and by "affirming that the conservation of biological diversity is a common concern of humankind…[870]

The Parties to the United Nations Framework Convention on Climate Change (UNFCCC) 1992 similarly acknowledged in the first paragraph of its preamble that:

> "change in the earth's climate and its adverse effects are a common concern of humankind."[871]

In other developments, this need to protect mankind rights related to environment is corroborated in UN's statement as follows: Massive use of chemical herbicides, discharge of a huge amount of gases into the atmosphere, the inadequate elimination of industrial radioactive and toxic waste[872] cannot be

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[865] ibid.

[866] ibid.

[867] World Charter for Nature A/RES/37/7, 48th plenary meeting, 28 October 1982. (World Charter for Nature 1982).

[868] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 142. (CBD 1992).

[869] Shelton 2009: 37 citing Schrijver, Nico. *Sovereignty over natural resources: balancing rights and duties*. Vol. 4. Cambridge University Press, 2008.

[870] [870] Convention on Biological Diversity, 5 June 1992, 1760 UNTS 142. Preamble.

[871] United Nations Framework Convention on Climate Change (UNFCC), 09 May, 1992, 1771 UNTS 107, Preamble, para. 1.

[872] United Nations. Programme for the Further Implementation of Agenda 21. Resolution Adopted by the General Assembly. Adopted by the General Assembly at its nineteenth special session (23 – 28 June, 1997). 1997: Annex, para. 9.

considered as limited to a national jurisdiction.[873] The damage they cause to environment and to life and assets is borderless.

According to Castro[874] the crimes against mankind can be matched by war crimes or genocide and therefore by the ones against environment perpetrated by international activity based on "immoral capital". These crimes, together with government or private corruption should be an object of criminal regulation at an international level in order to fulfill the principle of *"ultima ratio"* or *"necessary intervention"* of criminal regulations.

The creations of the last two instruments are critical. It is neither biological diversity nor the climate in isolation that are common concerns. It is somewhat the conservation of biological resources and climate change and unfavorable impacts in this way that are a typical concern. The topic of sovereignty and sovereign rights stays imperative to the two traditions, yet the language proposes acknowledgment that worldwide collaboration is important to address loss of biological diversity and climate change. The incorporation of less significant area in the common concern is found in the Preamble, para. 1 of the Paris Convention for the Protection of the Marine Environment of the North-East Atlantic,[875] adopted a while after the Convention on Biological Diversity. It acknowledges that:

> "the marine environment and the fauna and flora which it supports are of vital importance to all nations".[876]

In recent past, the UN Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa alluded to:

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[873] United Nations. Programme for the Further Implementation of Agenda 21. Resolution Adopted by the General Assembly. Adopted by the General Assembly at its nineteenth special session (23 – 28 June, 1997). 1997: Annex, para. 59.

[874] World Charter for Nature 1982.

[875] Convention for the Protection of the Marine Environment of the North-East Atlantic, 22, September, 1992. 2354 UNTS 67.

[876] Convention for the Protection of the Marine Environment of the North-East Atlantic, 22, September, 1992. 2354 UNTS 67, Preamble, para. 1.

> "the urgent concern of the international community, including states and international organizations, about the adverse impacts of desertification and drought.".[877]

though just a few part of the world are specifically concerned.

Common heritage of mankind as a concept developed in the 1960s. It is different from both prior ideas in the past, because the use of the word "heritage" implies a temporal aspect in the common protection of areas and resources. This concept necessitated development of some special legal regimes for deep seabed and Moon. The characteristic of the common heritage is a type of trust, which essentially aim at limiting use to peaceful purposes, sustainable and rational utilization with the purpose of conservation, good management of resources and ability to hand on to future generations.

Common heritage also stresses the importance of building equity and local benefit sharing with reference to equitable allocation of revenues. Benefit sharing can also imply the sharing of results of research and benefits accruing in common heritage areas like Antarctica.[878]

Conversely, the concept of common concern, is quite general and does not indicate particular rules and obligations but rather sets up the general reason for the concerned group to act. The conventions referred to, suggest a worldwide responsibility to conserve vanishing wild fauna and flora, ecosystems, and natural resources in general under threat. The 1980 resolution of the UN General Assembly on the draft World Charter for Nature[879] may be used to study the language used to this effect and for further clarification as regard this subject. It stresses the:

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[877] United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa; 1954 UNTS 3; 33 ILM 1328 (1994); United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, (Paris) (Adopted on 17th June, 1994; entered into force on 26th December, 1996), United Nations, Treaty Series, vol. 1954, p. 3. (L83, 19/03/1998, p. 3); *See also:* http://www.unccd.int/en/about-the-convention/Pages/Text-overview.aspx [Accessed: 14th November, 2014].

[878] Shelton 2009:38.

[879] Oct. 30, 1980 resolution of the UN General Assembly on the draft World Charter for Nature.

" supreme importance of protecting natural systems, maintaining the balance and quality of nature and conserving natural resources, in the interests of present and future generations"[880]

The right and obligation of states worldwide to act in issues of common concern must augur well with terms of national sovereignty. States hold power subject to the prerequisites of international law created to guarantee the common interest. Different spaces of worldwide law, including exchange and conciliatory relations, are instrumental to accomplishing this regular enthusiasm of mankind. They do not constitute in themselves a definitive objective of worldwide society yet are intended to enhance the good and monetary prosperity of mankind in general.[881]

The terms of the United Nations Charter demonstrate that international peace and security must be combined with economic and social advancement of all people and individuals so as to guarantee general growth of humankind. Regard for human rights, economic development and environmental protection have been bound together in the concept of sustainable development882 as a common concern of humanity. *Land law reform:* Legal recognition of customary tenure and the justifiable nature of customary and usufractuary rights to land may secure land tenure and tree tenure in the rural community and to strengthen the new forms of tenure under the Forests Act of 1989. Moreover, such laws should address issues including forest resource conservation, management and sustainable development and simplify the procedure for reservation of private and communal forests, formulate national policies that encompass people's involvement, sound management of ecosystems, and economic and social relevance. Research schemes may be sponsored in order to document customary

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[880] GA. Res. 35/7 on the Draft World Charter for Nature, UN GAOR, 35th Sess., Supp.No 48 at 15, UN Doc.A/35/7, Nov. 5, 1980, 20 I.L.M. 462 (1981).

[881] Shelton 2009: 39.

[882] Sustainable development describes development that is scientifically and technologically appropriate, economically viable, environmentally friendly, ethically and socially equitable. This concept was reported in a report titled: Report of the World Commission on Environment and Development: Our Common Future, 4 August 1987 (A/42/427, Annex).

The Report of the World Commission on Environment and Development: Our Common Future, 4 August 1987 (A/42/427, Annex) is also known as the Brundtland Report; a document which in October 1987 coined and defined the term "Sustainable Development."

The World Commission on the Environment and Development (WCED) is also known as the Brundtland Commission.

land tenure and to suggest some form of including the practical and workable customs in the law.[883]

Sudan is a party to a number of International Human Rights treaties, including the African Charter on Human and Peoples' Rights (ACHPR).[884] On 18th February, 1986 Sudan acceded to the ACHPR. The Working Group on Indigenous Peoples/Communities (WGIPC) is a special mechanism of the African Commission on Human and Peoples' Rights,[885] the human rights organ of the regional intergovernmental African Union.[886]The ACHPR exhorts member countries to adhere to the protection of rights to their resources and such protection relates to the following quoted articles of the ACHPR. These provisions of the African Charter read together create long term and solid legal protection of indigenous peoples' land rights in Africa.

Article 20 (1) of ACHPR 1981 stresses the rights of existence and self-determination as follows:

> All peoples shall have the right to existence. They shall have the unquestionable and an inalienable right to self- determination. They shall freely determine their political status and shall pursue their economic and social development, according to the policy they have freely chosen.[887]

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[883] Rahhal, Suleiman and Abdel Salam, Ahmed H. 'Land Rights, Natural Resources Tenure and Land Reform.' 2006. (Rahal and Abdel Salam 2006).

[884] African Charter on Human and Peoples Rights was adopted in Nairobi on June 27, 1981. It entered into force on October 21, 1986. ACHR is also known as the Banjul Charter.

[885] African Commission on Human and Peoples' Rights, African Commission on Human an Peoples' Rights - The Right to Nationality in Africa, May 2014. Available at: http://www.refworld.org/docid/54cb3c8f4.html [Accessed: 18th June, 2012].

[886] The Working Group on Indigenous Peoples/Communities (WGIPC) was established in 2001, and charged among others, with responsibilities of researching the human rights situation of indigenous peoples in Africa and to formulate recommendations to prevent and provide remedy for violations of indigenous peoples' human rights.

[887] Organization of African Unity (OAU), *African Charter on Human and Peoples' Rights ("Banjul Charter")*, 27 June 1981, CAB/LEG/67/3 rev. 5, 21 I.L.M. 58 (1982). *See also:*
http://www.refworld.org/docid/3ae6b3630.html [Accessed 12th June, 2012].

Article 21(1) OF ACHR 1981 stresses the rights of all peoples[888] to freely dispose of their wealth and resources as follows:

> "All peoples shall freely dispose of their wealth and natural resources. This right shall be exercised in the exclusive interest of the people. In no case shall a people be deprived of it."[889]

Both UN human rights treaties of 1966, namely the International Covenant on Economic, Social and Cultural Rights (ICESCR)[890] and the International Covenant on Civil and Political Rights (ICCPR)[891] also stress under common Article 1(1):

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[888] Though the Oxford English Dictionary gives various 'promising' meanings of *peoples*, such as (for instance) 'persons belonging to a place; composing community, tribe or nation'
(Oxford English Dictionary. Available at:
http://www.oed.com/view/Entry/140405?redirectedFrom=Peoples#eid 2005. [Accessed: 8th July, 2014]). (Oxford English Dictionary 2005), in a legal context, regarding the meaning of "*peoples*" in international legal text there appears to be *only* international consensus about just this article 1(2) of the *International Covenant on Economic, Social and Cultural Rights* (ICESCR) concerning the right to be protected against economic exploitation of one's country's riches and natural resources: the right is here definitely *not* restricted to the total population of the state (nation), but may - depending on the context – also be regarded as a right of only part of it. It is worth noting that *indigenous people as prospective resource users and managers* (p. 15) may have international law at their side (see Saul, Ben., Kinley, David. and Mowbray, Jacqueline. *The International Covenant on Economic, Social and Cultural Rights: Commentary, Cases and Materials.* Oxford University Press, 2014). (Saul et al. 2014).

[889] Organization of African Unity (OAU), *African Charter on Human and Peoples' Rights ("Banjul Charter")*, 27 June 1981, CAB/LEG/67/3 rev. 5, 21 I.L.M. 58 (1982); *See also:*
http://www.refworld.org/docid/3ae6b3630.html [Accessed 12th June, 2012].

[890] International Covenant on Economic, Social and Cultural Rights (adopted 16 December 1966, entered into force 3 January 1976) UN Doc. A/6316, 993 UNTS 3; UN General Assembly, *International Covenant on Economic, Social and Cultural Rights*, 16 December 1966, United Nations, Treaty Series, vol. 993, p. 3; *See also*: http://www.refworld.org/docid/3ae6b36c0.html [Accessed 12th June, 2012].

[891] International Covenant on Civil and Political Rights (adopted 16 December 1966, entered into force 23 March 1976) 999 UNTS 171; UN General Assembly, *International Covenant on Civil and Political Rights*, 16 December 1966, United Nations, Treaty Series, vol. 999, p. 171 (*See also*:

> "All peoples have the right of self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development."[892]

Article 1 went on further to state in paragraph 2 that:

> "All peoples may, for their own ends, freely dispose of their natural wealth and resources without prejudice to any obligations arising out of international economic co-operation, based upon the principle of mutual benefit, and international law. In no case may a people be deprived of its own means of subsistence."[893]

Article 1(2) seems to lay emphasis on 'right' in the statement:"… *in no case may a people be deprived of its own means of subsistence,*''[894] in view of impacts natural exploitation on (traditional) livelihoods. . Article 3 of the 2007 UN Declaration on the Rights of Indigenous Peoples (UNDRIP) re-echoes: *'Indigenous peoples have the right to self-determination.'* [895]

Key to exercising self-determination over natural resource development is the right to 'free, prior and informed consent' in its various forms. This right has been acknowledged in numerous international legal standards and law, including the 1989 "International Labour Organization Convention on Indigenous and Tribal Peoples in Independent Countries"[896] (ILO 169/1989). ILO 1989 Article 169 (6) emphasized the principle of free and informed consent in the context of resettlement of indigenous peoples from their soil; and in the UNDRIP.[897] As Lennox pointed out, numerous cases from the case law also support this, including the Ogoni and Endorois cases before "the African Commission on

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http://www.refworld.org/docid/3ae6b3aa0.html [Accessed 12th June, 2012] (UN General Assembly 1966)

[892] UN General Assembly 1966.

[894] UN General Assembly 1966.

[895] UN Office of the High Commissioner for Human Rights (OHCHR), *The United Nations Declaration on the Rights of Indigenous Peoples*, August 2013, HR/PUB/13/2; *See also:*
http://www.refworld.org/docid/5289e4fc4.html [Accessed: 14th June, 2012].

[896] International Labour Organization (ILO), *Indigenous and Tribal Peoples Convention, C169*, 27 June 1989, C169, Available at:
http://www.refworld.org/docid/3ddb6d514.html [Accessed: 23rd February, 2013] (ILO Convention 169 of June 27, 1989).

[897] ILO Convention 169 of June 27, 1989.

Human and Peoples' Rights"[898] and the Saramaka and Awas Tingni cases at the Inter-American Court of Human Rights.[899]

In summary, 'free' means that consent must be made without compulsion or intimidation; 'prior' means that consent must be given fully prior to the starting time of whatever natural process affecting the group or its state, territories or resources; 'informed' requires that group be given full disclosure of the activity and its possible impact; and 'consent' is a collective right to give or to withhold consent to proposed activities. This study seeks to explain the following commonly used terminologies and the conceptual relationships between the terms: 'freely dispose', 'deprived of'and 'means of subsistence'. [900] 'Freely dispose' does not point toward an unlimited right of use of the resource.[901] The ecological concerns should be taken into account at the earliest possible stage in decision-making. The concept 'deprived of' relates to the state of affairs in which resources are not in the community's own hands, but in external forces, outside of the community's control, which threaten the natural resource base, the communities rely on. The term 'means of subsistence' signifies anything which forms an indispensable and essential requirement to enjoy life; of which food forms an essential element.

It could be argued that the term 'deprived of' is of importance in the context of examining the right of peoples to self-determination; when original inhabitants of communities are denied of their resources and moreover, seen as threat to management of the resource base. These very resources are intentionally being exploited against their will by outsiders, as is the state of affairs in Western Sahara.[902] According to Koné, a right signifies a form of

[898] ACHPR. African Commission on Human and Peoples' Rights [Banjul], adopted June 27, 1981, OAU Doc. CAB/LEG/67/3 rev. 5, 21 I.L.M.58 (1982).
[899] Corrine 2012:17.
[900] Haugen, Hans Morten. The Right to Self-Determination and Natural Resources: The Case of Western Sahara', 3/1 Law, *Environment and Development Journal*. 2007:73. Available at: http://www.lead-journal.org/content/07070.pdf [Accessed: October 23, 2014]. (Haugen 2007).
[901] ibid. 73.
[902] ibid.: 73.

"entitlement or privilege."[903] Rights usually impose responsibilities on those who have the authority to "grant",[904] vary or deny a right, entitlement or benefit.

While Article 21(2) OF ACHR 1981 stresses in case of dispossession, the right to recover their property and be compensated as follows:[905]

> "In case of spoliation the dispossessed people shall have the right to the lawful recovery of its property as well as to an adequate compensation."[906]

Contrary to the provisions of the ACHPR [Article 21(1) and 21(2)] OF ACHR 1981 which emphasised that "all peoples have the right to natural resources, wealth and property,"[907] it is an open secret that land grabbing, dispossession and displacement have often been key human rights issues affecting indigenous peoples. They have in several instances been evicted from their lands; experienced conflict for access to valuable resources, power and amenities due to marginalisation; faced forced eviction orders from their traditional areas, in

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[903] Koné, Elizabeth M. Jamilah.The Right of Self-Determination in the Angolan Enclave of Cabinda. Paper presented at the Sixth Annual African Studies Consortium Workshop, Temple University School of Law; October 2, 1998. Philadelphia, PA, USA. 1998:3. Available at:
https://www.africa.upenn.edu/Workshop/kone98.html [Accessed: 16th June, 2012] (Koné 1998).

[904] ibid.: 3.

[905] Also about thirty years ago the African regional Economic, Social and Cultural Rights (ESCR) Charter came into force. Since 2006 the *African Court* – to which a State may become a party separately, which in 2014, 27 of the 54 members of the African Union had done – may in the end give binding orders (art. 27 of the African Court Protocol).
In 2009 the *Commisssion* that is based "on this Charter considered – in the world "nationally as well as internationally for the first time in a concrete case - the rights of indigenous peoples to their ancestral land and natural resources on their *cultural rights*. Alas the Kenyan State until the end of 2013 had not yet reacted as required, and the case may be brought before the Court. Kenya had forcibly removed the Endorois People from their ancestral land and forest around lake Bogoria, a natural reserve that had been inscribed, on recommendation of the IUCN, as a World Heritage, however without there having been – as prescribed – *a free, prior and informed consent* of the Endorois People, through their own representative institutions. Not complying with this requirement is according to the Commission, more the rule than the exception.

[906] ACHPR. African Commission on Human and Peoples' Rights [Banjul], adopted June 27, 1981, OAU Doc. CAB/LEG/67/3 rev. 5, 21 I.L.M.58 (1982).

[907] ibid.

favour of economic interests of other more advantaged groups and to large scale development projects; "driven by global capitalism and a ' logic of elimination'."[908] These actions inevitably produce dire physical consequences of destruction of lives and cultures, instead of improving standard of living of indigenous people. Establishment of protected areas and natural parks have induced vicious circle of poverty among indigenous hunter-gatherer and pastoralist communities, rendered them susceptible to, and unable to cope with, adverse effects of environmental changes. Large –scale expansion of land under crop production have had very detrimental effects on the livelihoods of indigenous pastoralists and hunter-gatherer communities in Africa.[909]

Article 22(1) OF ACHPR 1981 stresses the rights of all peoples to development and equal enjoyment of the common heritage as follows:

> "All peoples shall have the right to their economic, social and cultural development with due regard to their freedom and identity and in the equal enjoyment of the common heritage of mankind."[910]

At first sight one wonders if the *cultural* criterium does not place indigenous communities too much in a historical perspective, *excluding* too many just wishing to live sustainably in and from the forest, *including* too many expected or expecting to draw attention from the outside world. This problem however may be best solved by expecting from all communities in the first place (training them, if necessary) to keep poachers and other trespassers out of their territory.[911]

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[908] Hynes, Patricia, Lamb, Michele, Short, Damien and Waites, Matthew. (Eds.).Sociology and Human Rights: New Engagements. New York: Routledge. 2011:39. (Hynes et al. 2011).
Patrick Wolfe refers to this compulsion to dispossess indigenes the "logic of elimination." (Wolfe, Patrick. "Settler Colonialism and the Elimination of the Native," *Journal of Genocide Research,* 2006: 8 (4). Wolf 2006).

[909] Report of the African Commission's Working Group of Experts on Indigenous Populations (ACWGEIP)/Communities, adopted by the African Commission on Human and Peoples' Rights at its 28th ordinary session (May 2003), 2005, English edition. (ACWGEIP 2005).

[910] ACHPR. African Commission on Human and Peoples' Rights [Banjul], adopted June 27, 1981, OAU Doc. CAB/LEG/67/3 rev. 5, 21 I.L.M.58 (1982).

[911] A Dutch-based newspaper, "NRC *Handlesblad*" of July 26, 2014 gave an intriguing small article under the heading "*Disappearance of wildlife causes child labour,"* proposing to give local communities the exclusive right to their own hunting and fishing grounds (NRC *Handlesblad*. Available at: http://en.kiosko.net/nl/2014-07-26/np/nrc.html [Accessed: July 26, 2014]; clarifies the statement mentioned earlier.

Article 24 OF ACHPR 1981 clearly stipulates that:

> "All people shall have the right to a general satisfactory environment favourable to their development."[912]

Article 24 therefore, recognizes only a collective right with the result that the individual has no *locus standi* to enforce the right.

The report of the WGIPC[913] further stressed customary collective tenure as one of the key issues contributing to the loss of indigenous peoples' land in Africa which was neither acknowledged nor secured. Contrary to the foregoing, land occupied by pastoralists and hunter–gatherers was defined as *terra nullius*. Alongside this problem is the point that collective land titles are not granted by most national laws, whereas:

The article was based on an article by ten biologists of the university of California (Berkeley), in SCIENCE of July 25, 2014, volume 345, no. 6195, pp 376-378: *Wildlife Decline and Social Conflict.* (See on the *SCIENCE* page*: Policy Forum,* Conservation Policy: Policies aimed at reducing wildlife-related conflict must address the underlying causes. Warns against war on poachers that overlooks the ecological, social and economic complexity of wildlife-related conflict.).

Hunting and fishing are for more than an (American) billion of the very poorest people in the world their main source of animal protein, while today's global-scale harvesting of marine and terrestrial wildlife, generating together an income of 400 billion US dollar a year, causes extreme exploitation and violent conflicts. As examples are given, that men from Birma and Cambodja and children from Ghana have to work as slaves without pay, because their countries' coastal waters have become exhausted by the big foreign ships fishing for the world market. Somalian fishermen becoming pirates may be considered another consequence.

The authors conclude that without authorities willing and able to defend these peoples' interests, *local communities* should be granted exclusive huntimg and fishing ground rights. Fiji and Namibia seem already to have succeeded in this (Brashares, Justin S., Abrahms, Briana, Fiorella, Kathryn J., Golden, Christopher D., Hojnowski, Cheryl E., Marsh, Ryan A., McCauley, Douglas J., Nuñez, Tristan A., Seto, Katherine and Withey, Lauren. Wildlife decline and social conflict. *Science*, 345(6195): 376-378. 2014). ((Brashares et al. 2014).

[912] ACHPR. African Commission on Human and Peoples' Rights [Banjul], adopted June 27, 1981, OAU Doc. CAB/LEG/67/3 rev. 5, 21 I.L.M.58 (1982).

[913] African Commission's WGIPC 2005:22.

> "Collective tenure is fundamental to most indigenous pastoralist and hunter gatherer communities, and one of the major requests of indigenous communities is therefore the recognition and protection of collective forms of land tenure." [914]

In the Sudan, however, the acknowledgment of indigenous peoples and the protection of their traditional lands and resources are hindered by the lack of an adequate legal framework that recognizes their culture, way of life, and preferred mode of economic sustenance. As a replacement for protecting indigenous peoples' rights, the current legal framework works in contrary, as far as the human rights of indigenous peoples is concerned.

Inappropriate implementation of land use policies and legislation is demonstrated in several ways, e.g. reviewing forest policy and forest legislation indicated that all the management activities executed within the natural forest reserves are based on forest legislation that prevent local communities from access to the forest, primary sources of livelihood and use of forest resources. Reserved forests continued to be under ineffective protection and without management plans. The forest reserves law prohibits access to these forests except within the right of pass and limited benefits. Despite the guarding and patrolling systems, the reserved forests continued to be accessed illegally by the local people for wood gathering and for agriculture.

A vast area of forestland in the Sudan has been degraded due to the mismanagement of natural forests and the extensive felling of trees for forest products and agriculture, mainly through unsuccessful land use policies, laws and practices. Unsuccessful land use policies and legislation have induced a series of devastating conflicts instigated by historical legacies.[915] Indigenous peoples in the Sudan have decried the devastation of their cultures and the dispossession of their lands and territories through 'the so-called development projects. The violation of Sudan's indigenous peoples' culture and land 'led to clashes among country's diverse cultures and religions, displacement of communities, environmental damage, competition over resources, damage to the country's traditional economies and other practices which had sustained them since time immemorial.

Besides the lack of an adequate legal framework recognising and protecting the land and natural resource rights of indigenous peoples in the Sudan, other concerns related

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[914] Report of the African Commission's Working Group of Experts on Indigenous Populations/Communities,
adopted by the African Commission on Human and Peoples' Rights at its 28th ordinary session (May 2003),
2005:21. See also: Forest Peoples Programme (FPP). 'Land Rights and the Forest Peoples of Africa: Historical, Legal and anthropological Perspectives.' Forest Peoples Programme, England and Wales, 2009:16. (FPP 2009).

[915] As stated by Georg Henrik von Wright, "the actions of men are determined by their historical situation, but the historical situation is itself the result of the actions of men."

to land and resource rights include: resource-related conflicts due to incursions by dominant communities or among themselves and continued dispossessions of scarce resources; environmental degradation and desertification; a lack of consultation and participation in the management of their resources; and continued marginalisation and exclusion from infrastructural and development programmes. As discussed earlier, the eruption of violence in Darfur highlights underlying issues of conflict among the ethnic tribes scattered across the country.

As mentioned earlier, historical land injustices in the Sudan emerged as one of the root causes of the violence and related conflicts in the country. It is therefore of paramount importance to overhaul Sudan's legal framework on land if such conflicts are to be avoided. Majority of those land clashes directly affect indigenous peoples in the Sudan as they do on other communities as demonstrated in Darfur.

3.4 *De lege ferenda:* Aligning "responsive regulation" principles for improving regulatory enforcement and inspections

The enforcement school or sanction-based approaches[916] responding to the managerialists critique that deterrence would be the most successful strategy to ensure compliance with environmental law is at least questionable, in particular in a situation like that of forestry in the Sudan.

Enforcement tackles questions about the exercise of state power, the connection among state and corporate force, how institutions taking care of vulnerable people are controlled, and the responsiveness of individual and corporate actors to threats of sanctions.[917] For those supporting a mainly deterrence view, individuals and firms are believed to be 'rational actors' who are spurred together by benefit seeking. They cautiously assess opportunities and risks and defy the law when the foreseen fine and likelihood of being caught are little related to the benefits to be made through resistance non-compliance.[918] In general, regulatory agencies embracing the accommodative model are increasingly oriented towards the quest for results through collaboration instead of by coercion, and want to consider themselves to be consultants as opposed to strict law enforcers. These agencies are bound to give renewed opportunities, they offer guidance regarding how to comply, and may consent to overlook one infringement or violation in return for a correction to another infringement.[919]

It is recognized, nevertheless, that implementing a simply accommodative model of regulation, which essentially sees all people as good and honest, would be guileless. This regulatory strategy neglects to perceive that there are people who are not all that legit and will seize the opportunity of being presumed to be so.[920] Taking all these findings into consideration together, a regulatory enforcement strategy based exclusively on accommodation or a regulatory

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[916] Termed the enforcement school by those scholars who consider enforcement as mainly coercive strategy

[917] Lodge, Martin. Ian Ayres and John Braithwaite, Responsive regulation: Transcending the deregulation debate. In *The Oxford Handbook of Classics in Public Policy and Administration*. Edited by Martin Lodge, Edward C. Page, and Steven J. Balla, 2016:1 (Lodge 2016:1).

[918]Murphy, Kristina. *Moving towards a more effective model of regulatory enforcement in the Australian Taxation Office*. Centre for Tax System Integrity (CTSI), Research School of Social Sciences, The Australian National University, 2019:2. (Murphy 2019:2).

[919] Murphy 2019:3

[920] Murphy 2019:5

enforcement strategy based exclusively on deterrence is not the appropriate response. Braithwaite in this manner dismissed a regulatory strategy dependent on persuasion or a regulatory strategy centred completely on punishment. [921]

The following section explains a new approach to regulation that permits regulators to 'speak softly, while carrying very big sticks;'[922] that is, to be legalistic now and again, but accommodative and supportive in others. It could be described as an approach that attempts to establish a collaboration between those supporting accommodative and those supporting deterrent models of regulatory enforcement.[923] He proposed a convergence of the two approaches, viz., deterrence and accommodation.[924] This new theoretical approach to regulation is referred to as much as responsive regulation. [925]

In the Sudan, inspectors instantly "deterred," in other situations they depend on informal warnings. In view of this, there is a need for a model of enforcement that considers deterrence and persuasion as a continuum, not as a separation.[926] Socio-legal models of enforcement[927] demonstrate that environmental law enforcement may be attained by a merger of sanctions and incentives.

These two different approaches to regulation have been referred to as the 'deterrence' and 'accommodative' models of regulation. The advocates of this school provide four viewpoints in support of socio-legal models in enforcement of environmental law:[928]

1) Proponents reject enforcement mechanisms that are completely founded on the utilization of incentive-based mechanisms or sanction-based mechanisms. Rather, they propose a convergence of the two components known as responsive

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[921] Murphy 2019:6

[922] Ayres, Ian, and John Braithwaite. Responsive Regulation: Transcending the Deregulation Debate. Oxford: Oxford University Press, 1992:40 (Ayres & Braithwaite, 1992:40). President Theodore Roosevelt was reported as using "Big stick ideology, big stick diplomacy, or big stick policy" in his foreign policy: "speak softly and carry a big stick; you will go far."

[923] see Ayres & Braithwaite, 1992, Chapter 2.

[924] Murphy 2019:5.

[925] Murphy 2019:6.

[926] Ayres and John Braithwaite 1992:563.

[927] Socio-legal models of enforcement are centred on the concept of responsive regulation.

[928] see Ayres & Braithwaite, 1992, Chapter 2.

regulation or enforcement.[929] In sum, Responsive Regulation describes a model of regulatory enforcement. It is a prescriptive model that focuses to the benefits of specific institutional arrangements and strategies.[930] Responsive requirement finds some harmony between punitive measures and incentive-approaches or between the "carrots" and the "sticks."[931]

2) Hawkins[932]contends that the purpose of socio-legal enforcement is the prevention of environmental damage rather than punish breaches. He emphasised that the socio-legal enforcement aims at repairing environmental damage as opposed to retribution.

3) Ayres and Braithwaite[933] pointed out that punitive enforcement is costly since a great deal of time and cash is required for court actions. Thus, punitive enforcement is not ideal as a mechanism of best option. Then again, incentive-based mechanisms are less expensive and, in this way, highly preferred as enforcement mechanisms of best option. Also, Ayres and Braithwaite[934] propose that when regulated communities attempt to exploit the upsides of persuasion or incentive-based mechanisms, the law should change to hard and punitive responses. They are of the opinion that, responsive enforcement is "not about whether to punish or to persuade, but when to punish and when to persuade."[935]

4) It is also contended that compliance is most likely when the regulatory agency "displays an explicit enforcement pyramid" [936] of mixed regulatory sanctions. As will be discussed in subsequent sections, a responsive model of regulation joins the best of the two sanctions and incentive approaches into a solitary enforcement pyramid.[937] Ayres and Braithwaite suggest the utilization of an

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[929] see Ayres & Braithwaite, 1992, Chapter 2.

[930] Lodge 2016:7.

[931] Ayres and Braithwaite 1992:25.

[932] Hawkins, Keith. Environment and Enforcement: Regulation and the Social Definition of Pollution, Oxford Socio-Legal Studies. Oxford: Clarendon Press, 1984:4. (Hawkins 1984:4).

[933] Ayres and Braithwaite1992:25-26.

[934] Ayres and Braithwaite 1992:25.

[935] Ayres and Braithwaite 1992:25.

[936] Ayres & Braithwaite, 1992:36.

[937] Murphy 2019:2.

"enforcement pyramid" in enforcing the law[938] (see Figure 1).The pyramidal model of responsive regulation has since 1992 been used as Compliance Model.[939] It is being used routinely by environmentalists to help them manage and develop more effective compliance strategies.

The pyramidal model of responsive regulation (Figure 2) is intended to support commonly beneficial cooperative relationships between regulators and regulatees.[940] These focal thoughts have been adopted in several social science disciplines and in a scope of policy fields.[941] Figure 2 shows an enforcement pyramid comprised of several layers. Each layer represents a diverse enforcement strategy, at the disposal of a regulator to use in order to enforce the law or gain compliance from a regulated firm.

It is pointed out that if the firm or individual being controlled is being cooperative, the controller ought to act in response in turn by being agreeable and cooperative.[942] In the situation in which the controlled or regulated firm or individual is being uncooperative, the controller ought to heighten up the pyramid through a scope of compliance options that in the end lead to brutal to severe sanctions. Ayres and Braithwaite contend that owing to the hindrances of a punishment approach (i.e., cost, counterproductive, unworkable in the long term), regulators ought to consistently begin their enforcement strategies softly by utilizing cooperation and persuasion, and should possibly retort to sanctions and penalties when the controlled firm or individual keeps on being non-compliant. [943]

As pointed out by Ayres and Braithwaite, the options of cooperation and persuasion are considered to be the strategy of first choice because when punishment as opposed to dialogue is in the forefront of a regulatory encounter, it is fundamental to human psychology that people would be ashamed of it. Citizen response is probably going to be one of debilitated regard for compliance with the law. By keeping punishment out of sight rather than in the closer view

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[938] Ayres & Braithwaite, 1992:35-36.

[939] Ayres & Braithwaite 1992.

[940] Lodge 2016:1-2.

[941] Murphy, Kristina. Moving towards a more effective model of regulatory enforcement in the Australian Taxation Office. Centre for Tax System Integrity (CTSI), Research School of Social Sciences, The Australian National University, 2019. 1 (Murphy 2019:1).

[942] Murphy 2019:7-8.

[943] Ayres & Braithwaite 1992:35 -36.

of the encounter, the regulator is bound to keep a person's honest or law-abiding self to the fore.[944]

Ayres and Braithwaite[945] contend that the more prominent the statures of extreme enforcement to which an agency can heighten (at the peak of the enforcement pyramid), the more successful the agency will be at fortifying compliance and the more unlikely that it should fall back on tough enforcement. "Regulatory agencies will be able to speak more softly when they are perceived as carrying big sticks."[946] Incentive-based approaches are more preferred as mechanisms of best option. In the event that they fail to work, the regulator, as last resort, will opt for sanction-based approaches of enforcement.[947]

[944] Murphy 2019: 9.

[945] Ayres & Braithwaite 1992: 6, 25-26, 35-36.

[946] Ayres & Braithwaite 1992: 6.

[947] Ayres & Braithwaite 1992:35.

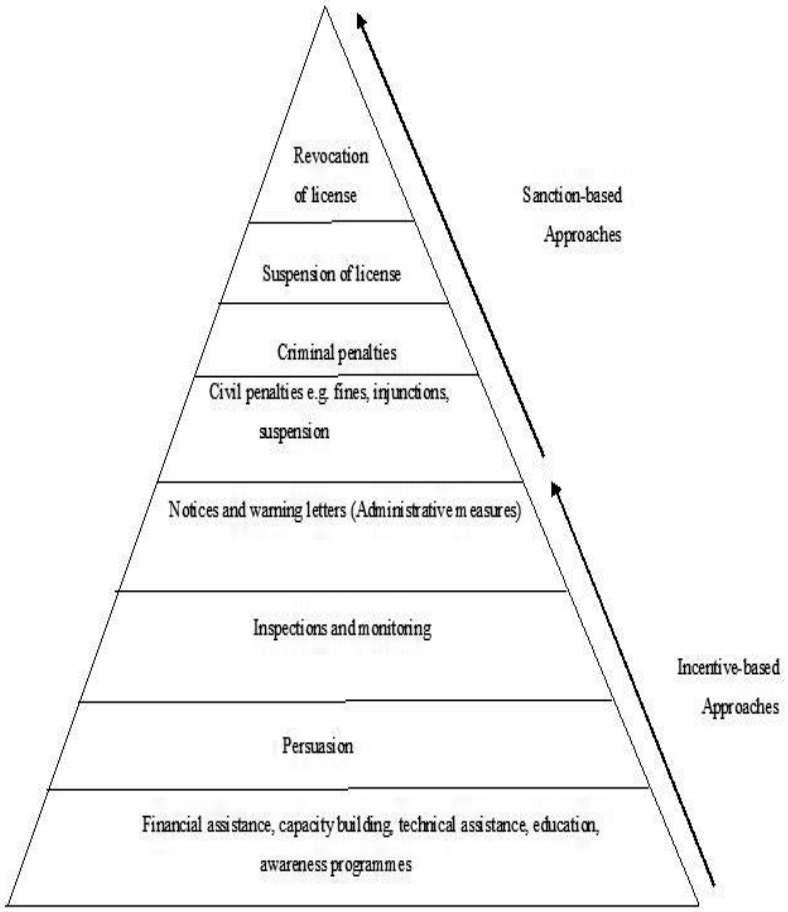

Figure 2: The pyramidal model of responsive regulation. It illustrates the enforcement pyramid of Ayres and Braithwaite (Ayres and Braithwaite, 1992:35).

Ayres and Braithwaite[948] argue that environmental laws ought to be enforced by a bottom-up approach. They clarify that sanction-based approaches are exorbitant and unaffordable, unworkable, and inefficient. Therefore, while enforcing environmental law, it is more advisable to begin with persuasive mechanisms, and bit by bit react with sanctions if the regulated agencies or individuals keep on breaching the law. This is on the grounds that enforcement can be secured if the legal process is seen to contain "big sticks" in the background.

[948] Ayres & Braithwaite 1992:26.

3.5 Conclusion

Enforcement often includes efforts by state authorities to ensure compliance with environmental laws through inspection, monitoring, negotiations, and legal action. The enforcement mechanism and implementation tools needed to address enforcement of environmental laws for sustainable development, such as the protection of forests include public awareness and participation, conservation orders, the licensing system, measures for leases and concession agreements, incentives and disincentives, and Environmental Impact Assessment. Positive enforcement mechanisms such as incentives ("carrots") encourage compliance positively. Negative enforcement mechanisms through adoption of punitive ("stick") measures take place in the form of sanctions, reparations, and agreement withdrawal to compel compliance with environmental law.

It must therefore be recognized that the United Nations formally acknowledges indigenous peoples' rights to such traditional lands and resources. The discussions in this chapter also point to the importance of including law as a body of rules and directives in conservation planning, with the specific purpose of promoting the acceptance of standards in terms of conflict settlement, administration of justice and safeguarding human rights. This chapter discussed regional and other international conventions and agreements dealing with natural resources management in the Sudan.

Despite the fact that the Sudan has ratified a multitude of international environmental agreements (e.g. treaties and conventions), and have statutes, regulations, and other provisions to protect the environment in its domestic laws, the problem of implementing the legislation adopted, revitalizing and strengthening of legal and policy mechanisms, and structure, arguably remain the greatest challenge to the Sudan's social economic development. The current implementation and enforcement of treaty instruments (or compliance with international commitments), and mechanisms are quite weak in international and national implementation processes and institutions. Tables 10, 11 and 12 exemplified how the government of the Sudan has failed to implement and/or develop legislation and policies to protect indigenous peoples and laws about forest resources, and land.

The accumulated environmental issues in the Sudan worsen these problems: Issues related to environmental changes in the Sudan are due to anthropogenic and climatic factors or cyclic events. These factors cause devastating adverse effects on the natural environment in the Sudan and in particular, adversely affect humans and almost all forms of endemic life.

Environmental problems consist of land degradation, desertification, access to portable drinking water, biodiversity loss, accumulated environmental damage,

coupled with socio-economic problems, such as large-scale loss of life, mass population displacement, poverty, pollution, natural resource depletion, extensive destruction of human capital and infrastructure, growing population pressure, health and widespread violations of human rights remain the landmark due to weak institutions; coupled with international, regional and national implementation and enforcement of environmental law mechanisms and treaty instruments. Further, the collapse of any rule of law has exacerbated the impacts of the conflict on the displaced and their host communities. It is of paramount importance for Sudan to observe its international obligation to protect fauna and flora and should engage more in cooperative problem solving by signing, ratifying or acceding to international and regional treaties to the conservation of natural resources and the protection of the environment.

CHAPTER 4

PRE-COLONIAL AND COLONIAL CONSERVATION PRACTICES IN THE SUDAN AND THEIR LEGACY TODAY

[Research question 2: (a): What was the forest policy and legislation in the Sudan during the pre-colonial, colonial and post-colonial, eras?]

4.1 Introduction

The first step of data collection and analysis for Chapter 4 consisted of identification of research problems or development of research questions to serve as the focus of the research. Taking in consideration the inductive nature of the analysis, the theme: "Pre-colonial and colonial conservation practices in the Sudan and their legacy today" was generated from primary sources of law and secondary sources of data obtained from series of compiled literature/documents etc. All information that was found essential to the research subject were highlighted from the data collected. Following data analysis, categories and themes (see Table 13) were derived from the whole process. The theme cut across data sets that were important to the description of a phenomenon and were linked to research question number 2 as indicated in Table 13.

In this study, qualitative content analysis was conducted in the form of coding to generate and establish meaningful categories, and patterns or themes in relation to existing environmental legislation and policy in the Sudan (see Table 13). "Pre-colonial and colonial conservation practices in the Sudan and their legacy today" derived from the process of data analysis, formed the basis of discussion of subsequent subheadings. The individual "subheadings" which subordinated the main heading in this chapter were formed from the categories as indicated in Table 13. The subheadings were created to provide a more detailed account, qualify and help in analysing the main heading or theme, lead the flow of discussion and illuminate descriptions of the phenomenon or theme.

Table 13. Phases of Qualitative content analysis (QCA) of research question number 2, indicating research questions, categories and theme.

Research Question No. 2	Category	Theme	QCA in relation to the fulfillment of intended aims of the study
(a) What was the forest policy and legislation in the Sudan during the pre-colonial, colonial and post-colonial, eras?	• Concepts of colonialism and legal transplants; • Land/Forest policy and law in the Sudan during pre-colonial era; • Land/forest policy and law in the Sudan during colonial era; • Land/forest policy and law in the Sudan in post-colonial era.		QCA fulfilled the role of completing the following: Identification of research problems and development of research question to serve as the focus of the research; *Collection of specific primary sources of law*: Systematic identification based on multiple

(b) What factors, if any, facilitated changes in forest policies and legislations or were a hindrance to them?	QCA of national forest policies and legislations of the Sudan	**Pre-colonial and colonial conservation practices in the Sudan and their legacy today**	electronic databases employed for literature search (see Table 1); *Collection of secondary data* from other published and unpublished grey literature in relation to the Sudan, reference books, legal textbooks, legal journals and legal encyclopaedias (see Table 1); Data analysis by coding and categorization, revealing the hidden theme; Determination of theme cutting across data sets: The whole exercise eventually generated clear categories and themes; Documenting findings and drawing of conclusions.
(c) To what extent has the development of the common law of land since its importation in the 19th century in Sudan occurred in difference in local circumstances?	• Potential effect of foreign law on the Sudanese traditional forest law, forests, land tenure system and other related land issues.		

This chapter presents forest policy and legislation in the Sudan during the pre-colonial, colonial and post-colonial periods. The British Empire of the nineteenth century engaged in both colonial and imperial practices. Imperialism (which has also been called neo-colonialism by some Third World leaders and statesmen) is a broader and more accurate term with which to describe the practices of powerful Western states in the period following the establishment of the United Nations. This period witnessed the end of formal colonialism, but the continuation, consolidation and elaboration of imperialism. We now live in this period.[949] Before delving further into the specific issues and discussions regarding forest policy and legislation in the Sudan, let us define and explain a few relevant concepts used in this chapter, namely colonialism and legal transplants (or foreign law).

According to Anghie (2014)[950] the terms colonialism and imperialism have generally been used interchangeably because their meanings are closely related. As both colonialism and Imperialism means political and economic domination of the other, these terms have been described/defined in several ways with difficulties in distinguishing between them. A textbook definition of colonialism includes the following: 'Colonialism' refers to:

> The practice of settling territories, while 'imperialism' refers to the practices of an empire.[951]

As Kwame Nkrumah puts it:

> Colonialism is that aspect of imperialism' where an alien 'government controls the social, economic and political life of the people it governs.[952]

He further elaborated on this definition:

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[949] Antony Anghie. *Imperialism, Sovereignty and the Making of International Law*. New York: Cambridge University Press. 2004. (Anghie 2004).

[950] [950]ibid.

[951] ibid.: 11.

As Michael Doyle puts it, "empire is a relationship, formal or informal, in which one state controls the effective political sovereignty of another political society. It can be achieved by force, by political collaboration, by economic, social or cultural dependence. Imperialism is simply the process or policy of maintaining an empire" (Doyle 1986:45, cited in Anghie 2004:11).

[952] Nkrumah, Kwame.*Revolutionary Path*. London: Panaf, 1973:172. (Nkrumah 1973).

> "Colonialism is, therefore, the policy by which the 'mother country', the colonial power, binds her colonies to herself by political ties with the primary object of promoting her own economic advantages. Such a system depends on the opportunities offered by the natural resources of the colonies and the uses for them suggested by the dominant economic objectives of the colonial power. Under the influence of national aggressive self-consciousness and the belief that in trade and commerce one nation should gain at the expense of the other, and the further belief that exports must exceed imports in value, each colonial power pursues a policy of strict monopoly of colonial trade, and the building up of national power. The basic notion, that of strict political and economic control, governs the colonial policies of Britain, France, Belgium and other modem colonial powers."[953]

The terms colonialism and imperialism emphasize suppression of the other. The definition by Anghie,[954] underscores a classification in which colonialism is understood as a practice of invading, building and maintaining colonies in other lands and territories by a group of people from another territory or native country for the purpose of settlement and/or exploitation of resources, in a new land but remain subject to, or closely connected with, the ruling power of parent nation. Anghie[955] defines colonialism as:

> "The practice of settling territories, while 'imperialism' refers to the practices of an empire"[956]

Imperialism, on the other hand, is thought of as the idea or policy driving the practice and of making, organizing and maintaining an empire; where a foreign government may govern a foreign nation with insignificant settlement without their consent and against their will. The most notable example of this was the "Scramble for Africa", (or the race for Africa) during the New Imperialism period, between the 1880s and the start of World War I. In the meantime,

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[953] Nkrumah, Kwame.*Revolutionary Path*. London: Panaf, 1973:18).

[954] Antony Anghie. *Imperialism, Sovereignty and the Making of International Law*. New York: Cambridge University Press. 2004. (Anghie 2004).

[955] Antony Anghie. *Imperialism, Sovereignty and the Making of International Law*. New York: Cambridge University Press. 2004. (Anghie 2004).

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the international community adopted a number of conferences, declarations and resolutions pertaining to colonialization or that define various types of colonial activities. In addition, since 1960, the United Nations General Assembly has condemned colonialism acts using the following political description of colonialism:

In the Declaration on the Granting of Independence to the Colonial Countries and Peoples by the UN General Assembly resolution 1514 (XV) of 14 December, 1960, colonialism was associated with: *''alien subjugation, domination and exploitation;''* which according to the UN General Assembly Res. 1514 (XV), 14 December 1960. *''Constitutes a denial of fundamental human rights.''*[957] This same UN General Assembly Resolution also declared that colonialism is *''contrary to the Charter of the United Nations,''* [958] Colonialism denies human rights to people it has subdued by violence, and keeps them down by hard labour, poverty and blank ignorance by force.

It was described as the deliberate and continued survival of the colonial system in independent African states, by turning these states into victims of political, mental, economic, social, military and technical forms of domination carried out through indirect and subtle means that did not include direct violence. The key elements of colonialism are obvious to many - alien subjugation, domination and exploitation, seizure of a country or region by imperialists, *''sometimes annihilation of the local population*."[959] Kwame Nkrumah defined the concept of 'Neo-colonialism' as:

> "the granting of political independence minus economic independence, that is to say, independence that makes a State politically free but dependent upon the colonial power economically" [960]

The term "neo-colonialism" generally symbolizes the interconnections of the various activities and impacts of any of the remnant colonial features in contemporary African, societies. Various studies have been extensively made about post-colonialism that despite being granted the right to self-government, the legacy of colonialism still continues to shape the nations' politics in ways that are in the lives of most former colonies. Practically, the legacy of Western

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[957] UN General Assembly Res. 1514 (XV), 14 December 1960, Art. 1.

[958] Ibid.

[959]Merry, Sally Engle. From Law and Colonialism to Law and Globalization *Law & Soc. Inquiry* 2003:336. (Merry 2003)

[960] Nkrumah, Kwame. 1973. *Revolutionary Path*. London: Panaf, 1973:172 (Nkrumah 1973).

colonialism still shapes and exerts significant influence on existing politics of aspect of the ex-colonized society. Particularly in the African context, where the legacies of colonialism still linger in the form of politics in modern African, societies.

> "Imperialism is nothing but finance capital run wild in countries other than its own" [961]

> "Colonialism is that aspect of imperialism' where an alien 'government controls the social, economic and political life of the people it governs."[962]

> "Neo-colonialism is the granting of political independence minus economic independence, that is to say, independence that makes a State politically free but dependent upon the colonial power economically."[963]

In this study, colonialism refers to situations in which a group of people from an alien state or native country invade another territory and settle there for the purpose of controlling the social, economic and political life of the people it governs while retaining ties with the ruling power of native country.

The concept of "legal transplants", also known as legal borrowing," "legal importation," "legal reception" and "legal taking,"[964] was coined in the 1970s by Alan Watson to clarify[965] the movement of a rule or a system of law from a country (the "originator" country) to the other (the "adopter" country), has now formed the core of the study of comparative and international law.[966] In this study, legal transplant is defined as the transfer of laws and related matters as rules, legal regimes, legal institutions, legal discourses, legal doctrines, legal methods and legal ideas (already in force), from one jurisdiction or institution to another rather than developed by the legal area inhabitants.

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[961] Nkrumah 1973: 172.

[962] Nkrumah 1973: 172.

[963] Nkrumah 1973:172.

[964] Janka, Dejene G. The Impact of Transplanting Environmental Impact Assessment Law into the Ethiopian Legal System. *Jimma University Journal*, 2013, Vol. 5: 75.

[965] Watson, Alan. Legal Transplants: An Approach to Comparative Law, (2nd ed.), University of Georgia Press 1974. (Watson 1974).

[966] Miller, Jonathan M. "A Typology of Legal Transplants: Using Sociology, Legal History and Argentine Examples to Explain the Transplant Process**,"** 2003. 51 *Am. J. Comp. L.* 839 . (Miller 2003).

A country may adopt the laws of another country due to migration or commercial intercourse. Another factor determining adoption of laws of another country may be because of the availability of important elites attached to the legal system and education of the donor country. On the other hand, a country may be forced to accept the laws of other systems due to war or conquest or colonization or physiological pressure. For example, many countries in Africa and Asia received laws from France and England as a consequence of colonization.[967] The first part of this chapter is devoted to the question of the extent to which the development of the common law of land since its importation in the 19th century in Sudan occurred in difference in local circumstances. The chapter discusses the traditional regulatory mechanisms and practices that have existed down through the ages for the protection of resources. The chapter also examines how the emergence of colonially derived legislative systems has created conflict between traditional and western modes of resource management and distortion of economic benefits and of social values as seen from the viewpoint of the majority of the citizens of this country.

Against this backdrop, this chapter seeks to address the following research question: *(a) What was the forest policy and legislation in the Sudan during the pre-colonial, colonial and post-colonial, eras? (b) What changes, if any, occurred or should have occurred in the forest policies and legislation? (c) What factors, if any, facilitated those changes in forest policies and legislation or were a hindrance to them? (d) To what extent has the development of the common law of land since its importation in the 19th century in Sudan occurred in difference in local circumstances?*

This study discusses how Sudan's pre-colonial customary ownership of rural land resources or traditional regulatory mechanisms and practices focus on the group or communities where much attention is paid to the survival of the collectivity and protection of resources. This chapter shows how the legal development during colonial times - with forests and forest activities becoming colonial property and under colonial authority, and with the exercise of police power - in many ways contradicted and broke up the traditional customary law. This development had major impacts on the livelihood of forest-dependent people and communities. Before, the forest was regarded as a common resource and its management was mainly in the hands of each local community, tribe or kingdom, without formal property rights in the Western sense attached.

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[967] Abdo, Muradu. and Abegaz, Gebreyesus.Legal transplantation. *Abyssinia Law*. Available at: http://www.abyssinialaw.com/root/study-online/item/450-legal-transplantation 2012. [Accessed: 28 October, 2013].

Equally important, material covered in this chapter is the influence of various colonial laws and regulations on the management of natural resources in contemporary Sudan. The chapter explains land/forest policy and law in the Sudan during pre-colonial, colonial and post-colonial eras, and potential impact of foreign law on the Sudanese traditional forest law. After Sudan gained independence in 1956, the colonial system was to some extent continued, but some reforms were made providing for greater participation and responsibility of the local community. This chapter examines the changes that occurred or should have occurred in the forest policy and legislation in the Sudan. In line with these changes, the chapter therefore describes not only the forestry sector review carried out between 1984 and 1986, but also factors contributing to trends in Sudan's forest policy and legislation in 1932, 1986 and 1989. Focus is on the legislative developments of the mid-eighties and the modern forms of forest tenure systems, characterized mainly by private, community and institutional forest reserves. Forests for conservation, protection and production are to be managed directly by owners, customary communities and institutions respectively, besides the national and regional forest reserves.[968]

4.1.1 Land/Forest policy and law in the Sudan during pre-colonial era (prior to 1890's)

The customary land tenure system was the main land tenure system during the pre-colonial era in the Sudan. Pre-colonial notions of natural resource use in the Sudan was based on communal use of resources. Customary land systems constituted all the land in the Sudan, and they were in communal ownership held in trust for individuals and families, by the head of the corporate bodies – the Chiefs, head of family, or clan. It was the responsibility of the heads of villages or clans to promulgate new rules and resolve environmental conflicts.[969]

The heads of villages or clans were symbols of traditional authority. Heads of villages or clans' lands were features of land ownership among all the Sudan traditional groups. The head of the family or clan had power to grant use rights to its subjects, and to enforce rights and obligations related to land under their jurisdiction. Essentially, customary land is regarded as belonging to the whole social group (family or clan) and not to any individual.

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[968] Forests National Corporation (FNC). Forest Policy, Legal and Institutional Framework Information Report. FNC, Khartoum. 2008:4

[969] Kameri-Mbote and Cullet, 1997

The literature [970, 971, 972, 973, 974, 975]) shows that Sudan's pre-colonial customary ownership of rural land and forest resources centred on communities. The traditions of communities in land allocation during the pre-colonial era were based on systems of resource use and management structures which combined livelihood security with resource conservation among members of the communities. Land rights were traditionally obtained and the land property was commonly owned by the community or a tribe.[976] Such recognition of rights is exercised with due respect to the local customs and traditions established by immemorial usage. As Reid points out: rights recognised by custom and proven by time are legal rights.[977]

Native Administration was a key social institution in the history of governance in the Sudan[978] over the last century when the tribe which possessed the demarcated tribal land (*Dar*) and considered the forest to be their habitat. They relied on the goods and services provided by the ecosystems, in particular forests. Several sacred sites were located deep in the forest. Their low input extensive use of natural resources, including forests provides justification for sustaining their way of life over thousands of years.

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[970] Möhlig, Willem J. G. (ed.) 2001. *Law in Africa*. Zeitschrift der Gesellsschaft für Afrikanisches Recht. Heft 1 (4 Jahrgang). Rüdiger Köppe Verlag Köln. (Möhlig 2001).

[971] Johnson, Douglas H. 2003. The root causes of Sudan's civil wars. James Currey, Oxford. (Johnson 2003).

[972] De Wit, Paul V. Land and Property Study in Sudan. Interim report scoping of issues and questions to be addressed. Norwegian Refugee Council, UNHCR & FAO, Project OSRO/SUD/409/HCR, Nairobi, 2004. (De Wit 2004).

[973] Nucci, Domenico. Land and Property Study in Sudan: study on arbitration, mediation and conciliation of land and property disputes. Norwegian Refugee Council, UNHCR & FAO, Project OSRO/SUD/409/HCR, Nairobi, 2004. (Nucci 2004).

[974] Ayoub, Mona. Land and Conflict in Sudan. In: Simons, Mark and Dixon, Peter (eds.), Peace by Piece: *Addressing Sudan's Conflicts*. London: Conciliation Resources, 2006. (Ayoub 2006).

[975] Agidee, Yinka. 2011. *Forest Carbon in Ghana: The Legal Framework and the Role of Community Resource Management Areas (CREAMAs).* Katoomba Group's Legal Initiative Country Study Series. Forest Trends: Washington, DC. (Agidee 2011).

[976] Gouraud, Sébastien. 'Rule of Law in Sudan's Three Areas. Rule of Law Programme in Sudan,' UNDP, Khartoum. 2006.(Gouraud 2006).

[977] Reid John Phillip. In Accordance With Usage: The Authority of Custom, the Stamp Act Debate, and the Coming of the American Revolution , 45 Fordham L. Rev. 335, 1976: 337 (Reid 1976).

[978] UNEP. Environmental governance in Sudan: An expert review." *United Nations Environment Programme (Dir.). Nairobi, Kenya*, 2012: 10.

Under the traditional law, the early institutions in the communities were headed by a tribal leader called the tribe chief (*Nazir*). He was supported by heads of sub-units or mid-level administrators (*Omda*) and the village leader or village or nomadic camp headmen) (*Sheikh*).These traditional leaders were the heads of traditional institutions and guardians of traditional norms and values that are respected in the natural environment and communities from generation to generation. The heads of the community were regarded as the original owners of the land under the traditional law and their title could be traced to an immemorial and long-continued enjoyment under a claim of right originating from first settlement. The rights were recognised by custom and proven by time, and became legal rights.

The Native Administration was charged with the responsibility of managing resources including land and rendering justice. The land administration covered management of natural resources such as water, pastures and wood as well as migratory routes.[979] The authority to manage the land was held by the *Nazir*, the tribe chief or governor. Inhabitants in each village headed by a *Sheikh,* have specific authority to certain areas under the control of the sheikh. [980] The *Sheikh* was entrusted with the responsibility of managing all administrative matters in each village, such as royalty and tax collection, protection of natural resources and supervision of individuals in the implementation of development projects. The duty of the *Sheikhs* and *Omdas* involved land allocation and reallocation to families for cultivation especially when their cultivated land was no longer fertile and productive. They were also tasked with protecting natural resources. Their activities contributed to the management of natural resources at both local and community levels, and it was also supported by legislation and right of resource use through a decentralized system hence, demonstrating the sustainability of the system. [981]

The *Omda* was in charge of handling various juridical matters, enforcement of law or ordinances and reporting of matters relating to security to the local

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[979] Tubiana, Jérôme, Tanner, Victor Abdul-Jali, Musa A. Traditional Authorities' Peacemaking Role in Darfur. Peaceworks No. 83. United States Institute of Peace, USA. 2012:5. (Tubiana et al. 2012).

[980] Luukkanen, Olavi, Katila, Pia, Elsiddig, Elsiddig A., Glover, Edinam K., Sharawi, Huda, Elfadl, Mohammed. *Partnership between Public and Private Actors in Forest-sector Development: Options for Dryland Africa based on experiences from Sudan with case studies on Laos, Nepal, Vietnam, Kenya, Mozambique and Tanzania.* Study commissioned by the Ministry for Foreign Affairs of Finland, 2006. 119 p. (Luukkanen et al. 2006).

[981] ibid.

government. An *Omda* belonged to five to six villages, i.e. five to six sheikh units.[982] User rights can be granted to people from outside a particular territory after seeking permission from the relevant territorial authorities. As mentioned earlier, the *Sheikh* was in charge of managing all administrative matters in each village territory and all judicial issues of the village were addressed by the *Omda* of that area.[983] Problems, difficulties and challenges or any complicated matters faced in the area were handled by the *Nazir*, representing all strata, tribal and regional groups. This system was applicable to both sedentary and migrant communities.[984]

Notwithstanding the limitations of the Native Administration, these management strategies had the importance that communities had a strong sense of ownership with the powers to conserve, manage and administer their own environment and all the resources existed therein. This strong sense of ownership contributed to a heightened sense of responsibility at the individual level, connecting "*moral character and self-control with ethical actions"*[985] and consequently contributed in promoting a sustainable association between humans and nonhumans or nature in general.[986]

Sudan's pre-colonial customary ownership of rural land resources centred on communities. Unregistered land managed under traditional leaders was called communal land. 'Common property resources' management was based on traditional customs and principles coupled with indigenous knowledge systems acting as customary laws. The set of cultural rights and customary laws guaranteed and paved the way for equal rights to users or a social institution control.

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[982] United Nations Development Project. Community-Based Rehabilitation for Carbon Sequestration and Biodiversity. Global Environment Facility, Project of the Government of Sudan. SUD/93/931. 1994. (United Nations Development Project 1994).

[983] Luukkanen et al. 2006.

[984] United Nations Development Project 1994.

[985] Laboy-Nieves, Eddie N., Schffner, Fred C., Abdelhadi, Ahmed and Goosen, Mattheus F. (eds.). *Environmental Management, Sustainable Development and Human Health.* U.S.A.: Taylor & Francis.2008:139. (Laboy-Nieves et al. 2015).

According to Laboy-Nieves et al. collective moral character in association with high norms of self-control and assuming responsibility portray more ethical climates and should be positively linked to ethical behaviour. (Laboy-Nieves et al. 2015: 139).

[986] Mawere, Munyaradzi. Traditional Environment Conservation Strategies in Pre-Colonial Africa: Lessons for Zimbabwe to Forget or to Carry Forward into the Future? *Afro Asian Journal of Social Sciences*, 2013. (Mawere 2013).

The systems were controlled by traditional leadership and a tribal setting. Such recognition in the Ordinance is conducted with due respect to the local customs, wise utilisation of indigenous knowledge systems and traditions established by immemorial usage.[987] , [988] As explained earlier, the original owners of the land were the tribal leaders who had a prescriptive right of title under the traditional law: This title was acquired by immemorial or long continued use and enjoyment under a title of right originating from the earliest settlement, use, secession or acquisition by conquest.[989, 990]

The informal local organizations at the village level played a major role in mobilizing the local people in adopting the intervention of community forestry.[991] There were many community organizations that were useful in communications, knowledge transfer and organization of people activities in a participatory manner.

Precolonial Sudan organised numerous traditional approaches enshrined in indigenous systems to conserve natural resources. These included, among many others, many traditional community managed systems of participation at local level activities, namely village committees, *Nafir* system and *Fazaa* traditions. These systems were made up of volunteers involved in helping or assisting each other to contribute their quota meaningfully towards environmental management or conservation or activities which were difficult in the absence of such a system. These volunteers did conduct a range of activities that included fire-fighting, communal building, water infrastructure or the facilities needed to supply water to consumers, maintenance and various *other types* of public improvement projects.

At the community forest level, these types of communally organized works involved planting tree seedlings, guarding, forest tending, selection and harvesting of forest products, and protection of communal forests. People were involved in knowledge sharing or knowledge transfer across local communities. They also engaged in resource management and systems for equal distribution of benefits from the communal forests. The village committee shouldered the

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[987] Agidee 2011.

[988] Mawere 2013.

[989] Möhlig, Wilhem J. (ed.) Law *in Africa*. Zeitschrift der Gesellsschaft für Afrikanisches Recht. Heft 1 (4 Jahrgang). Rüdiger Köppe Verlag Köln. 2001.

[990] Agidee 2011.

[991] "[The] term [community forestry] covers a broad range of tree or forest related activities that rural landowners as well as other users and community groups undertake in order to provide products for their own use and to generate local income" (Wiersum 1996: 18).

responsibilities of managing the system of resource distribution after approval of their proposal by the local people.

Wide local participation was encouraged in terms of activities such as land preparation, including surveying and forest boundary demarcation, construction of contour-bench terraces on very steep slopes as means of combining soil and water conservation with diverse water harvesting structure. Given this evidence, it can be seen that indigenous knowledge systems as used in precolonial Sudan have the potential to ease the environmental problems resonant of most countries in sub-Saharan Africa and beyond. As mentioned earlier, traditional institutions form the mainstay of indigenous knowledge which is gained by people in a community as a result of practical experience developed over a long time.

In fact, the main objective of the communal forests in the community forest area was contained in income generation for the development of the local communities. The main services in this context included water as the major priorities of villages in any of the areas where community forests existed. The other objectives were environmental and social commitments. To meet the objectives, the village committee and local people were much concerned with the sustainable development of the forests and successful marketing of timber harvested from the communal forests. Timber harvest and sales were normally disposed of as the standing volume through rotations. Usually the harvested timber was stacked at the boundary of the forests, but in some cases the village committee was responsible for transporting it to the principal cities. The local people were always involved in the management of their forests.

The establishment of forest reserves and registration held under ownership of the government started in the early 1900s. The communities did not cause any obstruction to this tenure system on condition that the rights and benefits of the communities, such as grazing of livestock, gathering of fuelwood and land tenure for agriculture, were secured. The authority of the community to exercise their rights and control over other communal property resources (non-reserves) in most of the rural areas was vital. These resources were held intact and not damaged with respect to grazing lands and the extensive non-reserved forests. The linkages between agriculture, animal husbandry, water and forests continued in sustainable shifting cultivation and integrated land use.[992]

As Barrow,[993] points out, indigenous people and their communities of origin historically have been closely related to their land, generally being descendants

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[992] Luukkanen et al. 2006.

[993] Barrow, Edmund. *The Dry Lands of Africa. Local Participation in Tree Management.* Initiative Publishers Ltd., Nairobi, Kenya. 1996 (Barrow 1996); *see also*, Barrow, Edmund, Clarke, Jeanette, Grundy, Isla, Kamugisha-Ruhombe, Jones and

of its original inhabitants. Over many generations, a holistic traditional knowledge system evolved, which acted as customary laws protecting their land, the natural resources and environment.

The seclusion and autonomy of such original communities and inhabitants strengthened them with the powers of conservation, management and administration of their own environment and all the natural resources therein. These activities coupled with their engagement in a traditional subsistence way of life in close relationship with humans and nonhumans or natural environment in general were the consequences of their environmental awareness and attempts to cope with their environment:[994]

> "These communities are the repositories of considerable depth of traditional knowledge and experience. Their disappearance is a loss for the large society, which could learn a great deal from their traditional skills in sustainable managing very complex ecological systems. Policy, institutional and administrative failures have the effect of reducing the value of environmental resources to society, especially through outright lack of means of conservation."[995]

The deprivation of local people of their resources kept them from fulfilling their obligations to future generations, causing a decline in fairness and equity that had previously formed the basis of their social structure.[996]

Tessema, Yemeserach. 2002. Analysis of stakeholder power and responsibilities in community involvement in forest management in Eastern and Southern Africa. IUCN Eastern Africa Programme. *Forest and Social Perspectives in Conservation* No. 9 (Barrow et al. 2002).

[994] WCED. World Commission on Environment and Development, Bruntland Commission. "Our common future." *Report of the world commission on environment and development* (1987). (WCED 1987). S*ee also*, Jentoft, Svein, Minde, Henry and Nilsen, Ragnar (eds.). *Indigenous peoples resource management and global rights.* Eburon Academic Publishers, The Netherlands: Eburon Academic Publishers, 2003) (Jentoft et al. 2003).

[995] WCED 1987:115.

[996] The NRC Handelsblad (a daily evening newspaper of the Netherlands, published by NRC Media) of Saturday, July 26, 2014, gave an intriguing small article under the heading *Disappearance of wildlife causes child labour,* proposing to give local communities the exclusive right to their own hunting and fishing grounds. The article was based on an article by ten biologists in SCIENCE of July 25, 2014, volume 345, no. 6195, pp 376-378: *Wildlife Decline and Social Conflict,* (See on the *SCIENCE* page*: Policy Forum,* Conservation Policy: Policies aimed at reducing wildlife-related conflict

4.1.2 Land/forest policy and law in the Sudan during colonial era (1890's – 1953)

Most African countries experienced more or less colonialism from the late eighteenth century, when the colonizers started to remove vast areas of land from the local people's control, without taking into consideration that the commonly-owned land used to be part of an effective integrated management system. The land tenure pattern of the Sudan witnessed changes related to a principle introduced by the British colonial power in 1890s. Significantly, in accordance with the Ordinance of 1898, Lands Commissioners were set up and were charged with the responsibility of ascertaining the titles to land in the Sudan, but where such rights do not guarantee full ownership of the land to reserve such ownership to the Government.[997] This judicial recognition of Customary Law under Section 9 of the Civil Justice Ordinance of 1929 became applicable if customary laws were not "*repugnant to good conscience, in matters of succession*, etc."[998] and Section 4 provides for the administration of '*justice, equity and good conscience*.[999]

The unregistered land is allowed to be owned by the government unless the contrary is proven: Laws were enacted to qualify all unoccupied vacant landscapes under effective state control and ownership.[1000] Land use in the

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must address the underlying causes. Warns against war on poachers that overlooks the ecological, social and economic complexity of wildlife-related conflict.) (Brashares, Justin S., Abrahms, Briana, Fiorella, Kathryn J., Golden, Christopher D., Hojnowski, Cheryl E., Marsh, Ryan A., McCauley, Douglas J., Nuñez, Tristan A., Seto, Katherine and Withey, Lauren. Wildlife decline and social conflict. *Science*, 345(6195): 376-378. 2014. (Brashares, et al. 2014).

Hunting and fishing are the main source of animal protein for more than a billion of the very poorest people in the world, while today's global-scale harvesting of marine and terrestrial wildlife, generating together an income of 400 billion dollars a year, causes extreme exploitation and violent battles. As examples are given, that men from Burma and Cambodia and children from Ghana have to work as slaves without pay, because their countries' coastal waters have become exhausted by the big foreign ships fishing for the world market. Somalian fishermen becoming pirates may be considered another consequence. The authors conclude that without authorities willing and able to defend these peoples' interests, *local communities* should be granted exclusive hunting and fishing ground rights. Fiji and Namibia seem already to have succeeded in this.

[997] Guttmann 1957:406, Sudan Government 2013.

[998] Guttmann 1957:406

[999] ibid. Sudan Government 2013.

[1000] Watts & Holmes-Watts, 2008:2.

Sudan is regulated by a combination of transplanted European common law and local customary laws, as is other social control in other countries in Africa. It may be useful to view this circumstance as an encounter between different legal cultures instead of as a mixing of legal rules of diverse origins.

The English common law in the colonial period of reception was not only a body of rules. It included the practices and social, and cultural norms observed by the English legal profession with regard to the common mode of dispute resolution adjudication; and modes of reasoning used in the application of legal norms. This law may be understood as a customary law of the English legal profession, and thus a legal culture. This legal culture has been adopted by the Sudanese legal profession.

In this study, the term customary law refers to indigenous common rule or practice in existence at the time of reception, that forms an intrinsic part of the acceptable and required behaviour of community members, and broadly applicable outside the scope of state institutions, for individuals and entities and is treated as a legal requirement as stipulated by Section 9 of the Civil Justice Ordinance of 1929.[1001]

Customary law is a fundamentally different legal culture which covers large number of social norms of a type which did not permit a simple application by state courts. Dispute resolution involves little adjudication, and an emphasis on mediation and negotiation. Principles regarding freedom of contract, the sanctity of concluded contracts, and the exercise of discretionary power are different from those of the common law. The contact between these two constantly changing cultures has resulted in some acculturation of indigenous legal culture to the common law culture, but little adaptation of the common law to customary legal culture.

The term 'traditional forest law' as used in this study refers to unwritten social and traditional norms, common rule or practice, and customary and traditional rights pertained to forests on a piece of land over which the head of the community has power and authority to allocate use rights to its subjects; and that have formed a fundamental part of accepted and expected behaviour in a community etc.

Indeed, despite the fact both common law and customary law are both legal systems, they are handled differently by the judiciary. The general rule in the Sudan is that the function of the doctrine of judicial notice is to expedite proceedings and judicial notice shall be taken of the common law rules. In the opposite direction to the situation with common law, the rule was that the court

[1001] Guttmann 1957:406, Sudan Government 2013.

can take judicial notice of customary law only in so far as such law can be "*ascertained readily and with sufficient certainty*". The ascertainment and inherent qualities of flexibility and adaptability and indeterminate nature of customary law offers room for consensus in situations in which the traditional justice system is based on oral traditions which are often referred to as "living customary law". Living customary law is described as dynamic and flexible owing to its focus on the circumstances of a particular case and changing social norms. Written customary law refers to colonial-era efforts to codify customary law, which has been argued for, to eliminate the flexibility of customary law and preventing from evolving with time. This being the case, others have pointed out that written customary law as practised in the postcolonial era offers a standard of predictability as may be required by law, while holding on to a standard of flexibility and adaptability.

The fact that the Sudanese legal system has its roots solidly in Western law and has faced cultural diversity for a long period of time might be a contributing factor to the mixed pluralistic legal system in the country. State law is mixed and pluralistic, with Western and African characteristics. The common law of the Sudan refers to the body of law consisting of transplanted Western legal norms. It could be a combination of generally uncodified legal rules founded on Roman-Dutch law and English common law, despite the Sudanese mix no more looking like the jurisdictions from which they originated. The Sudan adheres to the African customary law, defined as a plurality of mostly uncodified and unwritten local community laws, that also exists in the Sudan. Together these legal systems make up the Sudanese law. In summary, the Sudanese law is made up of complex mosaic of state and non-state laws with Western and African characteristics. Culture in general has always played an important role.

The British Colonial Administration controlled the administration and management of land in the Sudan by issuing legislation and by declaring that any land held under customary tenure that was unoccupied and unused, and/or has no structures on it as vacant land. In view of this development, land laws were passed in attempts to bring all vacant or unoccupied lands under effective

state control and ownership.[1002] The government declared itself as the presumptive owner of land, by right of conquest.[1003]

There has been a tendency in the Sudan, as elsewhere in Africa, to observe the environmental changes in social, economic and ecological terms. The customary ownership of land resources in the rural sector of the Sudan was greatly disrupted and weakened by the expropriation of land for British settlers and for commercialization of agriculture and timber, problems originating in inappropriate macroeconomic policies and ill-conceived infrastructural projects. Several of these policies were continued in the post-independence era.[1004]

The Title of Lands Ordinance of 1898 recognized as private property the individually registered cultivated lands in the extreme north and central riverine Sudan.[1005] This corroborates the findings of Wily[1006] who stated that the provisions in 1898 in the Sudan recognized rights vested in traditional authorities and tribes were redefined in 1901, 1903 and 1905. The Ordinance consolidated a 1903 Land Acquisition Ordinance, which contributed a great deal in empowering and helping the government to acquire land for irrigation schemes

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[1002] Watts, Susan and Holmes-Watts, Thomas N. 'Policy and Legal Frameworks for Sustainable Management of Communally Used Natural Resources in Post-war Southern Sudan.' Governing Shared Resources: Connecting Local Experience to Global Challenges, the Twelfth Biennial Conference of the International Association for the Study of Commons, July 14-18, 2008. Cheltenham, England, 2008. (Watts & Holmes-Watts 2008).

[1003] Despite the United Nations Declaration on the Rights of Indigenous Peoples international law has historically been bias towards indigenous people's rights, with respect to land rights. Majority of the rules related to title to territory with respect to international law concerned the justification of dispossession of indigenous peoples of their lands. In spite of availability of numerous legal systems addressing land rights for indigenous peoples during colonial period, international law was applicable in ensuring that all states follow the same legal doctrine (Gilbert & Couillard 2009). Land Rights under International Law: Historical and Contemporary Issues. In: Couillard, et al.. 'Land Rights and the Forest Peoples of Africa. Historical, Legal and anthropological Perspectives.' Forest Peoples Programme, England and Wales, 2009 (Gilbert & Coullard 2009).

[1004] Ghai, Dharam P. Ghai. Conservation, livelihood and democracy: social dynamics of environmental changes in Africa. United Nations Research Institute for Social Development, 1992, Vol. 33, p. 2; p.13.

[1005] IFPRI (International Food Policy Research Institute). 'Understanding Policy Volatility in Sudan.' IFPRI, Washington, DC, USA, Discussion Paper 00721, (October), 2007. (IFPRI 2007).

[1006] Wily, Liz A. Looking back to see forward: The legal niceties of land theft in land rushes. *Journal of Peasant Studies,* 2012. (Wily 2012).

and other public purposes, while the 1905 Land Settlement Ordinance helped in the establishment of an adjudication system in settling claims to waste and unoccupied lands. Such lands were declared to be government property, barring evidence to the contrary.[1007]

The colonial legislation made custom one of the major sources of Sudanese Land Law. According to Rahhal and Abdel Salaam,[1008] customary land usually has the following common characteristics (a -g):

a) "Land is not legally registered;
b) Usufructuary rights of access to land;
c) Land use rights expire if land is not in use for a certain period.
d) Overlapping, competing and conflicting land rights over the same piece of land by an individual or family but other members have rights as well, so that one individual cannot be said to have sole title to land.
e) Land remains connected to the clan or tribe and can rarely if ever be sold.
f) An authorized native chief has the power to allocate tracts of land, e.g. to newcomers, and to adjudicate disputes.
g) Traditional governance institutions or customary practices disenfranchised or discriminate against women in relation to land ownership and inheritance. Often they can only own land through their husbands or fathers and do not have full rights of inheritance."[1009]

In 1923, Sudan experienced a massive politicization of land ownership. It was a period when the lands of the country were divided into tribal homelands, especially in the northern parts of the country by colonial administration.[1010] This system, referred to as *principle of native administration*, to a certain extent legitimized ownership of the land resources.[1011] The traditional leaders were regarded by the administration as their appointees and were expected to play important roles in the community: They were tasked with the responsibility of

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[1007] IFPRI 2007.

[1008] Rahhal, Suleiman and Abdel Salam, Ahmed H. 'Land Rights, Natural Resources Tenure and Land Reform.' 2006. (Rahhal & Abdel Salam).

[1009] ibid.

[1010] Watts, Susan and Holmes-Watts, Thomas N. 'Policy and Legal Frameworks for Sustainable Management of Communally Used Natural Resources in Post-war Southern Sudan.' Governing Shared Resources: Connecting Local Experience to Global Challenges, the Twelfth Biennial Conference of the International Association for the Study of Commons, July 14-18, 2008. Cheltenham, England, 2008. (Watts & Holmes-Watts 2008).

[1011] Rahhal and Abdel Salam 2006.

maintaining law and order and ensuring the territorial integrity of the areas under their jurisdiction.[1012] They were likewise put in charge of allocating land resources under their custodianship.[1013]

Sudan's customary tenure of rural land resources was significantly weakened by the British Colonial Administration which declared as vacant land any land held under customary tenure that was unoccupied, unused or not zoned for immediate development.[1014] This change has had a profound impact on the varied customary law of the territory, in that it did not break the link between villagers and their *Sheikh* and tribal chiefs, but resulted in a gap and weakening or disappearance of the links between grassroots and the local government.[1015] Consequently the traditional tribal system was no longer allowed to perform functions related to or control natural resource management. Land allocation and land use type fell under the mandate of the government.[1016] The traditional tribal administration, in which all functions connected to natural resource management had been regulated by the tribe, was changed to a local government system based on rural councils administered by government officers. The tribal chiefs, the *Omda* and the *Sheikh,* used to perform that link. Accordingly, all-natural resource management-related functions were no longer under the control of the traditional tribal system as they used to be before, under the chiefs *Sheikh, Omda and Nazir.*[1017]

It must be said that the law is critical for an efficient natural resource management, which in turn is critical for livelihood and general welfare.[1018] Since colonial times, large areas of rangeland, once held under

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[1012] Watts & Holmes-Watts 2008.

[1013] Ayoub 2006.

[1014] Watts & Holmes-Watts 2008.

[1015] Luukkanen et al. 2006.

[1016] Watts & Holmes-Watts 2008.

[1017] Luukkanen et al. 2006.

[1018] In a study Berkowitz et al. argued that the ability to successfully adapt transplanted law to local conditions has a major impact on economic development (Berkowitz et al. 2002).

Also, in recent years, comparative economics and institutional analysis has experienced a renewed interest focusing on efficiency of legal systems, consequences of transplantation and the politics of institutional decision (Dzankov, Simeon., Glaeser, Edward L., La Porta, Rafael, Lopez de Silanes, F. and Shleifer, Andrei.. The New Competitive Economics.' CEPR Working Paper 3882. 2003. (Dzankov et al. 2003).

Such views have important practical implications in an era when considerable efforts are being made to integrate legal systems (Garoupa, Nuno and Ogus, Anthony. 'A

communal use with no formal (legal) land tenure system, have been used for agricultural activities that were previously organized through social control and this change in land tenure has constituted major problems for sustainable land and resource management. The trend was exacerbated by agricultural development policies, including national or private ownership, as well as large-scale industrial and traditional farming

These new systems of land use led to proximate causes and underlying driving forces of deforestation, clearing of forests for cultivation. With the advent of colonial rule, large-scale tree logging and greater interest in trophy hunting, over exploitation and degradation of Sudanese forest habitats and wildlife, impacted severely on their communities. Lands became Government property *'until the contrary is proven'*: It originated from the 1905 Land Settlement Ordinance (LSO) enacted by the Anglo-Egyptian administration and its successor Land Settlement and Registration Ordinance (LSRO) of 1925[1019] , [1020] which declared:

> "all waste, forest and unoccupied land in the country shall be deemed the property of government land until the contrary is proven" (LSO, § 7(ii); LSRO, § 16 (c)).[1021] "The presumptive ownership of the government can be rebutted by a person who could prove ownership of land or prescriptive possession before a registration officer"[1022] and "in the case of failure to prove full ownership or other lesser right on it, such land be deemed or registered as government-owned land".[1023]

Acquisition was but a tool for land conservation and the act of becoming the owner of land for the preservation of woods and forests was also laid down as a policy. The creation of forest reserves was meant for "public purpose," thus any land could be acquired according to the Land Acquisition Ordinance 1930 for

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strategic interpretation of legal transplants.' Centre for Economic Policy Research. Discussion Paper Series, 2003, No. 4123: 1-29). (Garoupa & Ogus 2003).

[1019] Deng, David K. Land belongs to the Community: Demystifying the 'Global Land Grab' in Southern Sudan. The Land Deal Politics Initiative, Working Paper 4, United Kingdom. 2013. (Deng 2013).

[1020] The major legal codification of the colonial government's land law was named the Land Settlement and Registration Ordinance of 1925 (ibid.).

[1021] Government of Sudan, Laws of the Sudan. 403 (5th edn. 1976), at s. 16(C). Berber and Dongola Town Lands Ordinance 1899 and the Title to Land Ordinance 1899 were the first ordinances for the ascertainment of rights in land and for the settlement of disputes as to the ownership. (Government of Sudan 1976).

[1022] Government of Sudan, Laws of the Sudan. 403 (5th edn. 1976), at. s. 13.

[1023] Government of Sudan, Laws of the Sudan. 403 (5th edn. 1976), at. s. 16(C).

that purpose. The colonial state declared land, water and trees "public" property.[1024], [104] This declaration resulted in the creation of a system of game parks that has caused eviction of traditional populations and rural communities from their traditional conditions.

According to Abdelnour [1025] the Woods and Forests Ordinance of the Sudan was published in 1901. Since 1908, forest management rules have been enacted, and in 1917, additional conservation rules were passed. For the colonial government, the Woods and Forest Ordinance 1901, consolidated by the Forest Ordinance 1908 and the Forest Conservation Rules 1917, were aimed at controlling and exploiting common land property, and increasing the extent of land under Forest Department jurisdiction and management. The purpose here was to ensure that the country's forest resources were exploited rationally to meet the national demand for wood to operate the steam power trains, river paddle boats, railway sleepers, bridge timber and fuelwood for the main cities.[1026] The following paragraph explains further these principal objectives of colonial forestry policies of the late 18th century forest management strategies were based in the Sudan:

(a) Colonial policies and legislation for the acquisition of forest land stressed protection and diverse product roles of forests. Product roles of forests focused on producing raw materials for ship building, construction and several other uses;

(b) On the basis that the production cycle in forestry lasts for a long time (e.g. 40 or more years), the assumption was that production and protection of forests in future years could best be sustained by government–controlled organizations and

(c) Colonial policies and legislation also stressed that forests play ecological service roles such as maintenance and improvement of local, regional and global conditions (climatic and physical conditions) in the country; and the necessity of conserving and regulating water supplies by protection of water catchment areas. There was therefore emphasis on the need for forest management plan to include ecological service roles of forests.

[1024] Deng 2013.
[1025] Abdelnour 1999.
[1026] Glover 2005.

In the following paragraphs, attempt is made to shed light on the fact that transplanted colonial law in the Sudan has had a devastating effect on the condition of the forest, in connection with the role of the people who before had been living in it, using it more sustainably: The analysis of the conflict between the discourse of forestry as **"*state* or *public property*"** on the one hand, and the traditional forms of forest management and utilization on the other, reveals much about power relations in the forestry sector in the colonial era. In this study, forestry as 'state or public property'[1027] is the central idea for understanding how the colonizers sought to rationalize their conquest of many of the continent's forest resources, particularly in the late 18th century. [1028]

In the late 18th century, as Sudan was experiencing colonial rule, wood was one of the necessities for the construction of railway lines and fuelling the Nile Steamers that link the northern part of the country with the south. To guarantee the continuous supplies of wood, the Department of Woodlands and Forests in the Sudan was established by the British Government in 1901[1029] concurrently with the Railways and Steamers Service in 1902 for that purpose.[1030] Initially, its main purpose was focused on timber extraction by supplying raw material for industrial and economic growth, and to secure a good supply of wood for the steamers plying the River Nile (Woods and Forest Ordinance 1901, consolidated by the Forest Ordinance 1908 and the Forest Conservation Rules 1917).

This objective was later superseded by the development of gum arabic as a commercial crop in the 1920s.[1031] The main tasks carried out by the newly established departments was the protection and reservation of the riverain *Acacia*

[1027] *State property also called public ownership, government ownership or state ownership, are property interests that are vested in the state, rather than an individual or communities* (Clarke, Alison C. and Kohler, Paul. *Property law: Commentary and materials*. London: Cambridge University Press. 2005:40). (Clarke & Kohler 2005).

[1028] Adas, Michael. *Machines as Measure of Men. Science, Technology and Ideologies of Western Dominance*. Ithaca, NY: Cornell University Press, 1989.(Adas 1989).

[1029] Abdelnour, Hassan O. 'Implementation of national forest programmes in Sudan. A case study.' Paper presented at FAO-Turkey Workshop, Istanbul 11-12 October 1999. 46 p. (Abdelnour 1999).

[1030] Kanoan, Gorashi M. Some Institutional Aspects for the Management of the Forest Resources in Sudan. Institute of Environmental Studies, Khartoum, 1995. (Kanoan 1995).

[1031] Abdulla, Eltayeb A. and Holding Christine. Forestry and the Development of a national Forestry Extension Services: A Sudan Case Study, Social Forestry Network, Paper 7c ODI, 1988. (Abdulla 1988).

nilotica (Sunt) forests growing naturally along the Blue and White Niles.[1032] The acquisition of land for the preservation of woods and forest was laid down in 1930 as a policy. The Forestry Law's long-term programme for establishing a forest reserve was a "public purpose" within the scope of the Legislature's general powers, thus any land could be acquired according to the Land Acquisition Ordinance 1930.

A major source of resource degradation throughout the colonial era came about as official attention was centred on **"*timber extraction*,"** mainly for export from sub-Saharan Africa to Europe. For example, timber was widely used by the British in the construction of naval vessels, and accordingly was of considerable commercial and strategic value.[1033] A study to examine the "issues regarding timber" of the British Royal Navy during the colonial era and of the effect of naval demands on the woods and political strategies of England explains the key determinant of the maritime demands for timber in this period.[1034] Colonialism policies were premised on the desire to ensure control and access to raw materials for industries in Europe. The overall picture, however, is one of expansion as foresters sought to increase timber production and exports commensurate with long term harvesting. Forests being described as "public property", in relation to timber extraction, then were associated with rising production and levels that fed the British Empire's seemingly insatiable appetite for this timber. This is consistent with what Cecil Rhodes, a British colonial official for which Rhodesia (now Zimbabwe) was named, highlighted as the main purpose of colonial economy and his role in it. His statement explains the original motives and goals of European colonialism in the 19th century:

> "We must find new lands from which we can easily obtain raw materials and at the same time exploit the cheap slave labour that is available from the natives of

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[1032] Ibrahim Abdelazim, M. Past, present and future afforestation, reforestation and tree management models for farmland in the Sudan. Workshop: Management of trees for farmland rehabilitation and development. October 27 –November 7, 2000. Khartoum, Sudan. 11 p. (Ibrahim 2000).

[1033] Albion, Robert G. and Howard, AI. *Forest and sea power: The timber problem of the royal navy, 1652-1862*. Harvard University Press, Cambridge, Mass. 1926. (Albion & Howard 1926).

[1034] Thirgood, John V. The Historical Significance of Oak. Symposium Proceedings: 16-20 August 1971, Morgantown, West Virginia. Available at: http://www.nrs.fs.fed.us/pubs/other/oak_sym/oak_symposium_proceedings_001.pdf [Accessed: 10th November, 2013]. (Thirgood 1971).

the colonies. The colonies would also provide a dumping ground for the surplus goods produced in our factories."[1035]

Bearing in mind the foregoing considerations, the imperialistic attitude portrayed by Cecil Rhodes towards Africa was reprehensible as the quotation of Cecil Rhodes shows. His statement indicates the purpose of colonialism in Africa, including the Sudan, had negative tendencies of economic exploitation, expansion, exploiting African raw materials and labour; at the same time, a means of creating markets for dumping manufactured surplus materials. These developments indicate that the legal system have been exploitative in nature for the above aims in the quotation could be smoothly interpreted.

Similarly, Nkrumah[1036] examined the driving force behind European imperialism and found economic factors to be the root causes of imperialism. However, he attributed imperialism to three fundamental doctrines in the philosophical analysis of imperialism, namely:

(a) The doctrine of exploitation; (b) the doctrine of 'trusteeship' or 'partnership' (to use its contemporary counterpart); and (c) the doctrine of 'assimilation.[1037]

This statement explains that the imperialists' quest is for political power and natural resources to be used in improving their technology and their national pride. Nkrumah further contended that:

"The annexation of one nation or state by another and the application of a superior technological strength by one nation for the subjugation and the economic exploitation of a people or another nation constitutes outright imperialism"[1038]

Colonialism is always prohibited and indeed is regarded as mostly serious breaches of international law because it basically contradicts the core values of the international legal order.

[1035]Quoted from Jean Swanson, Poor-bashing: The politics of exclusion. Between the lines: Toronto, 2003:41. *See also*: "Development as Enclosure: The Establishment of a Global Economy: The Ecologist 22 No.4 (1992) pp. 31-47);

[1036] Nkrumah, Kwame. *Revolutionary Path*. London: Panaf, Books: London. 1973. (Nkrumah 1973).

[1037] Nkrumah 1973:17.

[1038] Nkrumah, Kwame. *Revolutionary Path*. London: Panaf, Books: London. 2001:18 (Nkrumah 2001).

Unsustainable timber harvesting in the Sudan has also resulted from extensive areas being placed under timber concessions due to the use of forests as the source of economic development. Unsustainable timber harvesting and uncontrolled conversion of forest to agricultural land, as well as increasing pressure on lands used for shifting cultivation, have led to deforestation, forest degradation and loss of biodiversity.[1039] To worsen the situation, between 2000 and 2010, Africa lost 3.4 million hectares of forest area per year[1040]; in addition to the yearly increase in bushfires that devastate the land.

The replacement of traditional rules by the paradigm of modern European forestry, which during the colonial era was oriented towards the exploitation and maximization of timber production, eventually resulted in a partial disagreement of the traditional relationship between people and their natural environment. These developments affected their ability to participate genuinely in the adoption of mechanisms for conserving or ensuring equitable and sustainable use of natural resources through systems of norms, values and taboos.[1041]

Tables 10 and 11 attempt to highlight the fact that the transplanted law by colonial masters and their legacies in the post-colonial era, has not been compatible with the pre-existing order. Instead, it has consequently and adversely led to problems that characterize the biodiversity conservation legislation up to a recent date, namely, multiplicity, inefficiency and often confusion.

Another measure of development related to the issue of ***"forest conservation"*** **(**Central and Provincial Forest Ordinances 1932). In 1932, a general policy for forestry was drawn up, a policy which increased the powers of the Forest Department to include control over the cutting of trees outside reserved forest areas. The policy also made provision for the creation of central and provincial forest reserves, which were to be managed by central and provincial forest departments.[1042] The policy was drawn up to meet the national demand, particularly for timber. The Governor General of Sudan adopted a statement of

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[1039] Luukkanen *et al.* p. 54.

[1040] FRA, FAO. "Global Forest Resources Assessment 2010 Food and Agricultural Organization of the United Nations, Rome.2010 (FAO FRA 2010).

[1041] Ehlers, Eckart and Gethmann, Carl F,(eds.). *Environment across cultures*.. Berlin: Springer 2013:167. (Ehlers & Gethmann 2003).

[1042] ibid.

forest policy[1043] at the national level, which served as the basis for forestry administration and management in the Sudan.

Forest reserves were declared to be under central government control. In other words, these reserves were surveyed, demarcated, mapped and registered in the Sudan Gazette in the government's name. The principal objective of reservation was to guarantee protection, conservation and sustainable management. Local people were prevented from accessing this forest land except when they were given rights such as passage, water, grass collection and dead wood gathering.

The Statement of Forest policy gave recognition to the importance of dividing powers and responsibilities of forest resource management among the forestry administration and Provincial Governors. Article 2 (V) of this statement placed a clear obligation on the province officials and local government to "protect forests against damage by fire or grazing and to control gum areas." Under this article, the forestry administration was also charged with investigating and developing more fully the country's natural resources of timber and other forest produce as a better alternative, economically, to imported products.

The aim of the then declared policy of the Forest Department was to ensure sustained production of forest products and services to satisfy the national needs in perpetuity. The rationale behind this statement was to make the Sudan as self-sufficient as possible in wood and wood products so that the needs of the present and future generations could be met from the forest, thus reducing imports to a minimum. This policy was clearly defined and more deeply embedded in the legal system: The Central Forest Ordinance 1932 empowered the chief conservator of forests to administer central forest reserves and to utilize such forests solely for the production of forest produce.[1044] The power of the creation of such reserves as well as the de-reservation was vested on the Minister of Agriculture who could declare by an order published in the gazette the recreation or de-reservation of any area.[1045]

The Provincial Forest Ordinance 1932 entrusted the governors of the provinces to administer provincial forest reserve and utilize them solely for the production of forest produce.[1046] Again, the power of the creation of the provincial forest reserve as well as the de-reservation was vested with the

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[1043] The Statement of Forest Policy was approved by the Governor-General's Council in its 368th meeting held on 31st January, 1932. (On file No. MJ/Legis/21-15 at Attorney General Chamber).

[1044] Government of Sudan. Laws of the Sudan, 299 (5th edn. 1976), at s.4.

[1045] ibid. ss. 5 and 4.

[1046] Government of Sudan. Laws of the Sudan. 310 (5th edn. 1976), at s. 3.

Minister of Agriculture.[1047] The Provincial Forest Ordinance of 1932 was amended in 1948 by the Governor-General in council to enable governors to delegate all or any of their powers under Sections 3, 6, 7, 8, 14 and 21 to local government authorities.[1048]

These powers are: Administration of provincial forest reserves; permits for acts to be done in a reserve; protection of trees for special purposes; licence for private sawmills using mechanical means; power to make rules for the impounding of stray cattle; and the power to make rules for the carrying out of the objectives and purposes of the ordinance. The said Amendment further stipulated that all profits and fees resulting from the administration of reserves should be credited to or debited against the budget of local government authorities.[1049]

There were several aspects to measurement of development in forest conservation. First and foremost, development was equated with the assertion of the state's proprietary rights over forest lands. Bearing in mind the pre-colonial indigenous tradition, the colonial state identified itself strongly with the royal privilege to the control of the timber and to forest lands not cleared for agriculture.[1050]There were no such things as forest rights, property so called, held by individuals or communities over any forests in colonial Sudan; rather, the state was the 'unrestricted owner' of the forest and all that it contained.

What was important to note here is that forest conservation was seen by colonial foresters to be a process of intensive land management that was predicated on the demarcation of the commercially valuable forest lands as state reserved forests. Thus, not only was forest conservation considered to be an activity that was deemed a state prerogative (thereby denying alternative community-based forest management strategies), it also entailed – and justified –the spatial extension of state forest control. Whereas the state has the formal responsibility to protect the environment, in practice state policies and practices have often been a major factor contributing to deforestation in the Sudan and

[1047] ibid. at s.2 (3).

[1048] The Provincial Forest (Amendment) ordinance 1948, s.3(1) (On file No. MJ/Legis/21-16 at Attorney General Chambers).

[1049] ibid. at s. 2(3).

[1050] Bryant, Raymond L. Romancing colonial forestry: the discourse of 'forestry as progress' in British Burma. *The Geographical Journal*, 1996, 162(2): 169-178. (Bryant 1996) citing Guha, Ramachandra. *The unquiet woods, ecological change and peasant resistance in the Himalaya*. University of California Press, 2000. (Guha 2000).

elsewhere in tropical drylands[1051; 1052; 1053] In turn, those policies and practices are often a legacy of colonial rule in the Sudan.

In this country, the processing of forest land reservation and registration under the ownership of British colonial masters was not obstructed by the communities if the rights and benefits of the communities, such as grazing, deadwood gathering and land tenure for agriculture, were secured. The community control over other common property resources (non-reserves) in most of the rural areas was not broken with respect to grazing lands and the extensive non-reserved forests. The linkages between agriculture, animal husbandry, water and forests continued in sustainable shifting cultivation and integrated land use.

The native administration system was abandoned and replaced by the local government system based on rural councils administered by government officers. This change was not able to break the link between villagers and their leaders and tribal chiefs but resulted in a gap and weakening of links between the grassroots and the local government. The tribal chiefs, and the leader, used to form that link. Accordingly, all functions related to natural resource management were no more controlled by the traditional tribal system as they used to be before, under the chiefs and leaders. Land allocation and land-use type became subject to government decision at the centre instead of the land organization and use control by the tribal system.[1054]

The management of natural forest reserves was based on the premises that it would facilitate conservation of forest resources in order to maintain a sustainable supply of people's needs. However, reviewing Sudan's forest legislation and policy indicated a review that all management activities executed within the natural forest reserves were based on forest legislation excluding local communities from access to the forest and use of forest resources.

[1051] Bryant 1996 citing Hecht, Susanna and Cockburn, Alexander. *The fate of the forest*. London: Verso, 1989 (Hecht & Cockburn 1989).

[1052] Bryant, Dirk, Nielsen, Daniel and Tangley, Laura. *The last frontier forests-Ecosystems and Economieson the Edge*. World Resource Institute, Washington DC. 1997. (Bryant et al. 1997).

[1053] Grainger, Alan. *Controlling tropical deforestation*. London: Earthscan, 1993. (Grainger 1993).

[1054] Behind these discrepancies are also the fundamental differences between European and African land law in general, see Hagen Henrÿ, 'The Role of Land Law in the Rural Development in Niger, the Ivory Coast and Nigeria under Development Law Aspects', in Law and State (Institut für Wissenschaftliche Zusammenarbeit, Tübingen 1983) pp. 69-97, at pp. 75-76.

Colonial forest laws were coercive because they ignored the role of local communities in forest protection.[1055,1056] Forestry laws in the colonial period compromised local community rights to forest ownership. The laws emphasized resource exploitation rather than the sustainable use of resources. The centralized state control and forest management systems have rejected local peoples' claims to forest resources[1057] and ignored the traditional forms of forest management and utilization, which in many cases had successfully regulated utilization of forest resources. Instead, forest resources were used as the source for economic development that lead to extensive areas being placed under timber

[1055] Kameri-Mbote, Patricia A. and Cullet, Philippe. "Law, Colonialism and Environmental Management in Africa." *Review of European Community and International Environmental Law (RECIEL)*, 1997. 6(1): 23-31.

[1056] Barret, Christopher B. and Arcese, Peter. "Are Integrated Conservation-Development Projects Sustainable? On the Conservation of Large Mammals in Sub-Saharan Africa." *World Development*, 1995. 23(7): 1073-84.

[1057] For example, a recent regional review, *Forest Law Enforcement in selected African Countries,* carried out by the World Bank/WWF Alliance focuses on the priorities of large-scale forestry operations and only gives consideration to rural people's livelihoods insofar as they are involved in timber extraction through benefit-sharing procedures (World Bank/WWF. Forest Law Enforcement in Selected African Countries, Sitzerland: World Wildlife Fund, 2003:6-7) (World Bank/WWF 2003). Likewise, the UK Government's international project on illegal logging, with an overarching goal to 'realize the potential of forests to reduce poverty' and main goal of achieving 'policies', processes and institutions that promote sustainable and equitable use of forests in the interests of the poor', in its inception paid little attention to rural livelihoods (Department for International Development (DFID). Illegal logging and associated trade: tackling the underlying governance, policy and market failures. Programme Document. DFID, London. 2002a) (DFID 2002a).

Similarly, the initial 'Summary Action Plan' associated with the Indonesia-UK MoU on illegal logging includes no actions specifically designed to secure the livelihoods of forest-dependent communities

(Department for International Development (DFID). Summary action plan: Indonesia-UK MoU on illegal logging. DFID, London 2002b) (DFID 2002b). Thus, there are grounds for concern that forest law enforcement initiatives are failing to take account of the rights and interests of forest dependent communities and so could negatively affect rural livelihoods (Colchester, Marcus. "Justice in the forest: Rural livelihoods and forest law enforcement." *Forest Perspectives 3*. Center for International Forestry Research, Indonesia. 2006) (Colchester 2006:5).

harvesting concessions.[1058,1059] Licences and other forms of taxes so far unknown to local communities were imposed to control the exploitation of forest products that the local inhabitants had had free access to previously, either for their domestic consumption or for marketing.

The statement of Sudan's forest policy provided for the regulation and restriction of customary usage rights. The Central Forest Ordinance of 1932 enacted this policy concerning the regulation and restriction of usage rights. On the creation of a central forest reserve, the Director had the right to close or restrict areas to which the public has access or could abolish all rights of access to resources in the forests or rights of use in the forest.[1060] Cattle entering the reserve for the grazing season were matters that could be exercised only by obtaining a licence from the Director of Forests.[1061] In contrast, grazing of cattle or entering in a provincial forest reserve required a licence from People's Executive Council.[1062]

The forest reserves law prohibits ***access to these forests*** except within the right of pass and limited benefits. The colonial state's reservation policy undermined this link between people and forest. In the case of rural people living far away from reserves, free access to the forests was completely denied; reliance on the market for these products was unavoidable result.[1063] However, even for those who lived next to a reserve, access was limited. Thus, official forest settlements specified which individuals could extract produce, how much they could extract of various forest products, and the period over which they could do so.

A review of forest legislation and statement of forest policy indicated that all management activities executed within the forests outside and inside natural forest reserves were based on forest legislation controlling and excluding local communities from gaining access to the forest and use of forest resources. The

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[1058] Glover 2005:98.

[1059] Luukkanen, Olavi. Katila, Pia, Elsiddig, Elnour A., Glover, Edinam K., Sharawi, Huda, Elfadl, Mohamed. *Partnership between Public and Private Actors in Forest-sector Development: Options for Dryland Africa based on experiences from Sudan with case studies on Laos, Nepal, Vietnam, Kenya, Mozambique and Tanzania.* Study commissioned by the Ministry for Foreign Affairs of Finland, 2006. 119 p. (Luukkanen et al. 2006).

[1060] On the power to close public road, water way or watering place, see the Central Forest Ordinance 1932, s. 8.

[1061] ibid. s. 9(a).

[1062] The Provincial Forest Ordinance 1932, s. 6 (a).

[1063] Scott, James C. *The moral economy of the peasant.* New Haven: Yale University Press, 1976. (Scott 1976).

forest legislation and statement of forest policy were designed to ensure a flow of timber at a level that could be sustained over time but failed to provide a legal basis for community forestry and the multiple roles of forests.

The Central and Provincial Forest Ordinances 1932 follows the classical model of wrapping nature in protected areas that exclude other forms of land-use. In effect, the instrument has vested designated zones under public control for the propagation, protection and conservation of flora. Forest reserves are the product of declarations made under the instrument regarding the use of alienated government land. The effect of this declaration is to exclude other forms of land-use and to vest monopoly rights of management and conservation by the government.

The Statement of Forest Policy aimed to establish that the "***protection of forests"*** against damage from fires or by grazing and the control of gum areas should be the objectives of province officials with the assistance of local government.[1064] The Provincial Forest Ordinance 1932 was typically unique in the sense that it allowed protection of forests produce outside formal reserves. The Local Government Ordinance 1954, empowered the People's Executive Council to make rules with respect to the regulation or prohibition of cutting trees generally or of particular species of trees; the kindling of fires in or near forest areas; and the production, collection or removal of forest produce.[1065] Local people were required to seek prior permission from the People's Executive Council[1066] in order to cut or take any product for trade purpose from any growing tree.

The vesting of monopoly rights in the state has been justified on several grounds. First, timber extractions serve important functions and possess values that transcend the scope of immediate individual pre-occupations: supply of raw material for industrial and economic growth, and rural development, forest conservation and forest revenue generation. A system of public control is therefore deemed to be imperative to assert the overriding public interest.

Another measure of state property concerned ***"forest revenue".*** The colonial forestry which all foresters espoused was predicated on large-scale commercial timber extraction with adequate remuneration and revenue to the state as land-owner. What was the point, after all, of devising complex and costly techniques of timber extraction and regeneration if not to satisfy the international demand for wood and the state's right to an income from its forest lands? At its most basic level, then, the state property in forest management was about the

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[1064] The Statement of Forest Policy, Art. 2(v).

[1065] The Provincial Forest Ordinance 1932, s.7(1).

[1066] ibid.

expansion of timber production to increase the financial return to the colonial state.

The first Statement of Forest Policy[1067] issued in 1932 was followed by the promulgation of the Central and Provincial Forest Ordinance 1932.[1068] The 1932 forest policy statement spells out the management plans and how revenues from forest products were to be shared. A Conservation-Based Forest Policy that aimed to concentrate felling in forest reserves where regeneration could be assured was adopted. Felling in these reserves would be controlled by a licensing system and a definite felling programme and that royalties would be collected only on forest produce cut from areas outside the forest reserves to encourage the concentration of felling inside the reserves. This policy was embodied in Section 4(1)(a) of the Royalties Order 1939, that followed the Forest Policy (1932) to regulate the exploitation of unreserved forests.

The Royalty Order 1939 exempted royalties on timber, charcoal and firewood originating in a central or provincial forest reserve. If the other two measures of development were bound up with the satisfaction of imperial timber sourcing and revenue-generation objectives, then development in forest conservation was about the steps that were to be taken to ensure that these concerns did not result in forest degradation. In contemporary parlance, forest conservation was about the sustainable development of the forest resource. However, it needs to be emphasized that colonial foresters were only concerned with a small fraction of the forest resource – namely timber located primarily in tropical dry deciduous forest that was of commercial and strategic value to the colonizers e.g. the British empire. Moreover, the quest to maximize timber extraction and revenue at times conflicted with the aims of conservation.

[1067] See paragraph 359 of the Governor-General Report on the Sudan, which states ”A statement of Forest Policy was drawn up and received approval as the basis on which to draft new forest ordinance.” Cited on File, ibid.

[1068] The two Ordinances were passed by the Governor General’s Council in its 375th meeting held in Khartoum on 20 th April, 1932, and approved by the High Commissioner.

4.1.3 Land/Forest policy and law in the Sudan in the post-colonial era (1956 – present)

The review of Sudan's forest policy and forest legislation, as in many developing countries, had been characterized by the strong concentration of power over land, wildlife, water, and forest resources in the central state apparatus, and the corresponding lack of ownership and local participation[1069] in resources management. The independent state did not later disturb the inherited system of natural resource management and adopted the various colonial laws and regulations on the management of natural resources whereas the government has reviewed some of the inherited natural resource regimes; they still to a large extent echo their predecessors.[1070]

The Sudan depends on statutory law based on colonial legislation for its land regulation and dispute resolution. Legislative power is vested in both the government and the bicameral parliament — the National Legislature, with its National Assembly (lower chamber) and the Council of States (upper chamber). The judiciary is independent and obtained by the Constitutional Court.[1071]

The records show that despite the dominance of customary law, the land and resource rights of most communities during the colonial and present era, there has been failure of adequate protection by national laws – they lack security of

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[1069] The UNCED Earth Summit in Rio de Janeiro in 1992 induced the need for greater community participation in natural resources management in sharp public focus. *"In relation to conservation measures, one more legal point should be mentioned: the question of participation. In some constitutions, e.g. in the Finnish Constitution of 2000, a new civic environmental right has been established (Section 20). Its main content is that citizens have the right to participate in decision-making dealing within environmental matters in their sphere of interest."* (Hollo 2007a: 858).

[1070] David, René. Les grands systemes de driot contemporants: Droit compare, Paris. 1964 (David 1964); Thompson, Cliff F. The Sources of Law in the New Nations of Africa: A Case Study from the Republic of the Sudan. In: Hutchison, Terence W. (ed.). *Africa and Law: Developing Legal Systems in African Commmonwealth Nations*, Madison, Wisconsin, 1968: 164. (Thompson 1968). cf. Atiya, S.G. v. Bakheit Adam Mohamed and the Recovery of Lost and Stolen Property Ordinance, 1924, Republic of the Sudan, Judiciary. Sudan Law Journal and Reports. 1956-1969. Republic of the Sudan Judiciary. (1956: 147). (Republic of the Sudan, Judiciary 1956-1969).

[1071] Central Intelligence Agency (CIA). World Factbook: Sudan. U.S. Central Intelligence Agency. Available at: https://www.cia.gov/library/publications/the-world-factbook/geos/su.html [Accessed: 5th December, 2013]. (CIA 2013).

tenure. It is further reported that this insecurity was abused by colonial masters, and until now has not been tackled properly by the governments of the independent state of the Sudan. Another key element is that some of current governments in Africa, including the Sudan, appear no different than those of their predecessors in earlier centuries.[1072] David points out that throughout the independent states of Africa "there is no question of abandoning the Western law which prior to independence had become their *droit commun*." [1073] There are several reasons to explain this phenomenon. One explanation for this statement is that Sudan adopted the common law of the British colonial masters because the important elites are attached to the legal system and education of the donor country, Britain. Another plausible reason might be that the Sudan received British codes due to the existence of gaps and the force of British colonialism.

The land laws, the planning laws and laws relating to development enacted during the colonial era have remained in force with little reform, if any. It is not only the laws but also the policies and development, which continue to be dominated by colonial legacies.[1074] The question is whether the people of the Sudan have adjusted their behaviours to the prescriptions of the imported laws or people are settling their social and economic conflicts pursuant to customary laws.

A recent study by Paglia[1075] found that a mire of conflict, coercion, violence and exploitation characterised the postcolonial administration, because they formed the enforcement mechanisms during colonial period. She added that by considering the failure of state- and nation-building, postcolonial elites in power were incapable to gain local support. In effect, these strategies were considered necessary to maintain order. She further stated that the postcolonial government maintained its power through terror and violence due to absence of strong and effective state institutions to implement efficient enforcement mechanisms.

[1072] Pritchard, Janet, Lesniewska, Feja, Lomax, Tom. Ozinga, Saskia and Morel, Cynthia. Securing community land resource rights in Africa: A guide to legal reform and best practices. FERN, FPP, ClientEarth and CED. 2013:6) (Pritchard et al. 2013).

[1073] David 1964:564.

[1074] McAuslan, Patrick J. W. B. Law, Housing and the City in Africa. In: Kanyieihamba, George. W. and McAuslan, Patrick. J. W. B. (Eds.), *Urban legal problems in East Africa,* Uppsala: Scandinavia Institute of African Studies, 1978: 20. (McAuslan 1978).

[1075] Paglia, Pamela. Ethnicity and Tribalism: are these the Root Causes of the Sudanese Civil Conflicts? African conflicts and the Role of Ethnicity: a Case Study of Sudan. 2009. (Paglia 2009).

Against this backdrop, colonialism strengthened and legitimized practices, which were characteristic of the feudal system.[1076]

Vital Bambaze in his foreword to the "*state of the world's minorities and indigenous peoples*" said a major problem encountered by minorities and indigenous peoples world-wide is the threat of eviction from their land and natural resources which are the basis of their livelihoods, cultures and identities as a people.[1077] He went on to say that many communities' identities have always been closely connected to their territory for ages. When their lands are seized by developers for– infrastructure projects, oil and gas pipelines, commercial agribusiness concessions, tourism development or conservation – they are forcibly evicted from their resources with little or no compensation.[1078] A study by Benjamin O. Nwabueze on *Constitutionalism in the Emergent States* corroborates the finding that various independent African governments experienced problems in articulating suitable constitutionally structured institutions, centred either on the commonwealth pattern of government or on other systems, such as those of one-party governments. As de Smith states in the foreword to the book by Nwabueze:[1079]

> "In a large majority of newly independent states, even the most modest expectations of liberal constitutionalists have gone unfulfilled. … Colonial authoritarianism, belatedly modified in its decline, had shown how a country could be governed even without popular backing. The nationalists who took over political power found too many seductive temptations to cling to office regardless of constitutional restraints or respect for minority interests. And the frustrations engendered by the prospect of indefinite exclusion from the privileges of office were usually too severe for a loyal opposition to develop. In such a political climate, it was unrealistic to be astonished when political activity failed to exhibit a decorous regard for the rules of the constitutional game."[1080]

Though international law basically concerns itself with the relations of independent states, its set of rules was to govern the title to newly colonized

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[1076] ibid.

[1077] Walker, Beth (ed.). State of the World's Minorities and Indigenous Peoples 2012. Minority Rights Group International. 2012:7. (Walker 2012).

[1078] ibid.

[1079] Nwabueze, Ben O. *Constitutionalism in the Emergent States,* London: C Hurst & Co Publishers Ltd, 1973. (Nwabueze 1973).

[1080] de Smith in: Nwabueze 1973: ix.

countries.[1081] Those rules were vital for the delineation of land titles, binding both colonizers and local inhabitants. Shillington pointed out that the last 59 years of the 19th century saw transition from 'informal imperialism' of control through military influence and economic dominance to that of direct rule[1082]

In the Sudan, the shift in policy after independence was first made by the Provincial Forest Ordinance 1932 (Amendment Act, 1959) which provided for the requirement of a licence from the Minister of Agriculture before erecting a private sawmill using mechanical means.[1083] In 1960, the Provisional Administration Act came into force and was consolidated by the consequential Amendment Act 1961. The latter was entrusted with the responsibility of devolving powers to the Executive Council of a province. The devolution of powers under the Central Forest Act 1932 and the Provisional Forest Act 1932 were organized to the effect that the Director of forests could delegate to people's Executive Council of each province all his powers conferred by Sections 3, 6, 7, 8, 14 and 21 of the Act.[1084]

The local government authorities failed to develop provincial forestry as stipulated in the law but instead, developed a propensity to mine environmental resources to generate revenue without considering investments in reforestation. In line with colonial land policy, the Unregistered Land Act (ULA) was enacted in 1970 during Nimeiry regime. The ULA § 4(1)[1085] declared that all waste,

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[1081] Gilbert, Jérémie and Couillard, Valérie. Land Rights under International Law: Historical and Contemporary Issues. In: Couillard, Valérie, Gilbert, Jérémie, Kenrick, Justin and Kidd, Christopher. (eds.). 'Land Rights and the Forest Peoples of Africa. Historical, Legal and anthropological Perspectives.' Forest Peoples Programme, England and Wales, 2009. (Gilbert & Couillard 2009).

[1082] Various authors agree that it is the cause of many of Africa's problems today (e.g. Harrison, Paul. *Inside the Third World: The Anatomy of Poverty.* Harmondworth, Penguin Books 1993:45 (Harrison 1993); (Shillington, Kevin. *History of Afric*a (Revised Second Edition), New York: Macmillian Publishers Limited, 2005:301). (Shillington 2005). Whereas some of these measures may be attributed to the colonial era, with prolonged impact, others have been attributed to more recent developments, such as population growth and global economic trends (Kameri-Mbote and Cullet 1997:23).

[1083] The Provincial Forest Ordinance 1932, s. 7(1).

[1084] Amendments (Consequential to the Provincial Administration) Act 1961. Legislative Supplements, 23 (1961), s.3(31).

[1085] Government of Sudan. Laws of the Sudan. 403 (5th edn. 1976), at s. 16(C). Berber and Dongola Town Lands Ordinance 1899 and the Title to Land Ordinance 1899 were the first ordinances for the ascertainment of rights in land and for the settlement of disputes as to the ownership.

forest and unregistered land occupied or unoccupied, belonged to the state and was deemed to belong to the state. This Act gave the state the right to withdraw *de facto* recognition of customary land claims other than as usufruct rights.[1086]

Moreover, the Act legally abolished the power of the Native Administration Act[1087] to allocate land rights in rural communities and it dissolved the legal basis of the concept of tribal homeland, or *Dar*. Prior to 1970, communal lands continued to be controlled under traditional system until 1970 when the Unregistered Land Act 1970 was issued. The Act declared the common resources under government property. Ever since, the government land has been the major type of land settlement. In effect, the Act was mostly applicable in riverain areas, while majority of rain-fed agricultural areas retained customary land holdings.

From a legal point of view, however, the 1970 Act provided reasons for the state to contest such measures, and this remained *de facto* the case after the 1970 Act was repealed by the 1984 Transaction Act.[1088] One of the objectives of the 1970 Act was to enable the state to have full control over the settlement of newly irrigated lands, particularly in the Rahad and El-Suki schemes.[1089] The primary importance of the 1970 legislation was to provide a clearer legal basis for lease and usufruct rights to individuals for use of land resources in development projects, and to facilitate acquisition of land for such projects. [1090] In recent times, some development of community forestry encouraged allocation of land under community ownership for forestry purposes under communal management. However, the government land is becoming the main type following the 1970 Act of land settlement through which all unregistered lands are declared government lands.

[1086] Section 4 of the Unregistered Land Act of 1970 transferred the full ownership of unregistered land resources, whether occupied or not, to the state (Rahhal and Salaam 2006). Ayoub (2006) asserted that that Unregistered Land Act of 1970 proved to be more repressive than colonial laws as it empowered the government to exert force in safeguarding its interests in land use matters, including the accumulation of land by few rich investors (Ayoub 2006).

[1087] The 1970 Native Administration Act (NA) is generally considered as a watershed in government policy towards customary authorities and institutions, as it replaced such authorities with inexperienced tribal leaders chosen on the basis of political clientele or affiliation. The NA was then formally abolished in 1971 (IFPRI (International Food Policy Research Institute). 'Understanding Policy Volatility in Sudan.' IFPRI, Washington, DC, USA, Discussion Paper 00721, (October), 2007). (IFPRI 2007).

[1088] ibid.

[1089] ibid.

[1090] Bruce 1998.

4.1.4 A qualitative content analysis of forest policies, legislations and trends in the resource condition in the Sudan

[Research question 2(b): What changes, if any, occurred or should have occurred in the forest policies and legislation?]

4.1.4.1 Introduction

Sudan has passed various laws to regulate forests and forestry. The general law consists of the common law and the principles of equity, which are applicable in the Sudan's forest law because of the country's history as a former colony of the United Kingdom. Law itself consists of legislation and mostly a framework of defined provisions of constitutional or international law. Laws in the Sudan like elsewhere in the world, spell out standards, procedures and principles that must be adhered to and are enacted by governmental entities, which also make policies, and allocate resources. Policy is a term that is generally used to describe what a government plans to achieve. It spells out the goals of the government. It also involves the methods and specific tools the government will use to achieve them.

The government may find it essential to pass a law that allows it to establish the required institutional and legal frameworks that can be used to achieve the set goals. Laws must be guided by current government policy. For Sudan to regulate its natural resources including forests, law must be guided by government policy. It is also essential that national legislation, policies and practices must be guided by the international standards developed to protect natural resources, including forests in the Sudan.

It is not in doubt that there are important public interest considerations in the sustainable management and utilization of forest resources. However, it is questionable whether the public interest can only be served through exclusive state control over those resources. Exclusive control and legal prohibition of other forms of land-use may not be viable and sustainable methods of management and conservation. The practice of excluding other forms of land-

use from protected areas, in the long-term, may result in mounting political pressure to convert portions of protected areas into human settlements and agriculture, as population pressure on land outside the protected area system increases.

Already large chunks of forest areas have been officially excised from the forest and converted to rain-fed mechanised agricultural schemes and settlement to satisfy the demands of adjacent populations in Gedaref State in the Sudan. The Sudan experienced a drastic decline in forest cover and a rising threat of deforestation between 1968 and 1981, mainly due to growing population and their demand for forest products and services, The area of natural forest in the Sudan declined from 584 362 km^2 in 1968 to 559 015 km^2 in 1981, a decrease of 25 347 km^2 in 13 years.[1091] There arose an increased need for new typologies of natural resources use and institutional arrangements that would harmonize the imperatives of conservation and the resource needs of local communities.

Against this backdrop, a forestry sector review[1092] was carried out (1984-1986) leading to a number of legislative developments that had a bearing on natural resources conservation, starting with the passing of a new Forest Policy for 1986, which formed the basis of the strategy for the forestry sector. It was an update of an earlier statement, the Forest Policy 1932. The Prime objective of both statements was the reservation, establishment and development of forest resources for the purpose of environmental protection and meeting the population's need for forest products. This chapter reviews the key trends in the

[1091] Hassaballa, Osman and Nimir, Mustafa B. Towards a National Conservation Policy. In: Caroline de Jong-Boon, (ed.) Environmental Problems in Sudan. The Hague: Institute of Social Studies, 1990:128.

[1092] The Forestry Sector Review was carried out in 1985 by the World Bank and bilateral donors. The need for institutional changes and the revision of laws and regulations were among the recommendations adopted by the Review. For the details of the actions required by the Government of Sudan, see World Bank, Sudan Forestry Sector Review, 1985. pp. 109-110.

Sudan's forest policies and legislation since the mid-1980s. What follows is a discussion of the main features of the Forest Policy 1986.[1093]

4.1.4.2 Factors that facilitated changes in forest policies and legislation in the Sudan

[Research question 2(b). What factors, if any, facilitated changes in forest policies and legislation or were a hindrance to them?]

(i) Introduction

As stated by FAO,[1094] as a policy instrument, legislation provides legal support for policy implementation. Sudan has passed various laws to regulate forests and forestry, most of which support sustainable forest management. In a growing number of cases, legislation is taking the lead in directing forest management, especially when policy has been weakly implemented. In Sudan, key forest legislation has been revised to address current needs and priorities regarding rapid changes taking place and the changing demands on forests and forestry.

[1093] FNC (Forests National Corporation). Forest Policy of Sudan. Forests National Corporation, Khartoum, Sudan, 1986. (FNC 1986).

[1094] FAO. 'Forestry policies, legislation and institutions in Asia and the Pacific Trends and Emerging Needs for 2020,' Asia-Pacific Forestry Sector Outlook Study II, Working Paper Series, Working Paper No. APFSOS II/WP/2010/34, 2010 (FAO 2010).

(ii) Factors contributing to trends in Sudan's forest policy and legislation in 1932, 1986 and 1989

The Sudan is one of the few countries which has had a Forest Policy since 1932. The policy was amended in 1986and became known as the National Forest Policy. The central plank of the revised forest policy of 1986 is environmental protection and the newly emerging concept of people's participation. The section explains the factors influencing the trends in the Sudan forest policy and the salient features and goals of the 1986 Forest Policy, the Forests National Corporation Act 1989 (also called the Forests Act 1989) and the greatest improvement on the 1932 Central Forests Act.

The first part of this section lists and explains the salient features and goals of the Forest Policy, 1986:

Restriction and regulation of rights and privileges: Distribution of forest tenure is an essential element in legislation. From a legal point of view, who officially owns the forests determines who manages and controls the forest. In the Sudan, the government recognized new forms of forest tenure: private, community and institutional forests. It issued restriction and regulation of rights and privileges among the local people to assure continuity of forest operations without obstacles. On the other hand, provision is made for the local people to meet their needs for forest products.[1095]

[1095] According to Lawry (1990), in situations in which forest dwellers have little economic value to local people owing to restrictive access rules, it is unlikely for sustainable local management institutions to emerge (Lawry, Steven W. "Tenure Policy towards Common Property Natural Resources in Sub-Saharan Africa." *Natural Resources Journal* 1990. 30:403-404). (Lawry 1990).

National reservation target: It raised the national goal of forest reserves from 15 to 20% of the total area of the Sudan for environmental protection and meeting the population's needs for forest products taking into consideration environmental degradation, soil erosion and desertification issues and to comply with international standards with respect to reservation.

Lessees shall leave certain areas in agricultural scheme as protective and productive forests: It stressed the role of forests in environmental protection by creating new obligations on a lessee in mechanized farming to leave or to plant 15% of rain-fed lands and 5% of the total area of irrigated schemes are to be allotted to trees as shelterbelts (i.e. protective purpose) and to convert forests when cleared into forest product (i.e. productive purpose) so as to ensure proper use of trees and to avoid wastage of wood resources and loss of potential revenue.

Stressed the mobilization of popular and international efforts for participation in afforestation, tree planting and forest protection:

It emphasized the role of public participation[1096] and international community efforts in tree planting and sustainable management of forests.[1097]

Conceptualized the multiple use of forest: The rapid changes and critical challenges to forestry posed by forests and society calls for drastic measures to address this issue. Increasing demands for forest products, needs for conservation, rehabilitation of fragile degraded forest lands, make changes in the role of forests necessary.

In order to achieve multiple objectives and meet society's increasing needs, the policy statement conceptualized the multipurpose use of forests;[1098] by

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[1096] The idea of public participation – or procedural environmental rights – is now widely accepted as a necessary ingredient of environmental policy and law in the industrialized world. It is also generally seen to contribute significantly to the legitimacy of environmental policy and law. These rights may refer to the right to obtain information on a public document including environmental information, the right to be heard (including the right to take part in the preparation of a matter by e.g. presenting opinions on it), and the right of access to courts (Kumpula, Anne M. Ympäristö oikeutena, Suomalaisen Lakimiesyhdistyksen julkaisuja 2004, A-sarja N:o 252, pp. 13-14). In the discourse concerning these rights it has been presented e.g. that the right decisions are more likely to be made in open, democratic procedures, than closed ones (See Saward, Michael: 'Green Democracy?' in Dobson, Andrew & Lucardie, Paul (eds.), *The Politics of Nature. Explorations in Green Political Theory,* London: Routledge, 1993: 76, 84-88). Dobson & Lucardie (1993) also point out that substantive rights are preconditions to the realisation of democracy; see also Kumpula 2004 pp. 16-17). This type of connection has also sometimes been denied, or at least seen as being based on mere belief with no empirical foundation (See Määttä, Tapio. 'Ympäristö eurooppalaisena ihmis- ja perusoikeutena: kohti ekososiaalista oikeusvaltiota' in Liisa Nieminen (ed.), Perusoikeudet EU:ssa (Lakimiesliiton kustannus, Helsinki, 2001:287–288). (Määttä 2001).

[1097] Article 2 (k) of the EU Forestry Strategy stresses "*the need to encourage a participatory and transparent approach with all stakeholders recognising the wide variety of ownership regimes within the Community, which necessitates the involvement of forest owners*" (See for these Main characteristics of the EU forest sector: Available at:
http://ec.europa.eu/agriculture/fore/characteristics/index_en.htm. (Accessed on 5 October 2008).

[1098] This policy statement is also reflected in Article 1 of the European Union Forestry Strategy, which apart from encouraging multifunctional role and sustainable forest management, also identifies a series of key elements for its implementation. It mentions in this connection social, economic, environmental, ecological and cultural functions,

classifying forests into "protected forests" that is forests which serve a protective purpose, like watershed protection and "productive forests"[1099] for which the objective is to produce fuelwood and building poles. The statement did not categorize "recreational forest" but calls for the consideration of the recreational aspects of forest use when realizing the protective and productive purposes.

Stressed the role of forest extension: It recognized the need for research in forest development and emphasized the role of forest extension.

Forest administration responsibility: It divided forest administration responsibility between the Central Government and the regions (states and provinces). Not tilting the scales against decentralization,[1100] the policy adopted a national approach that takes into account regional and local priorities.

Recognized and encouraged the establishment of community, private and institutional forests: The forest policy 1986 involved recognition and encouragement of the establishment of community, private and institutional

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in particular in rural areas and emphasises the contribution forests and forestry can make to existing Community policies (see Regulation No. 99/…./EC of the Council of the European Union of 15 December 1998 on a forestry strategy for the European Union (OJ C56, 26.2.1999). (Council Resolution of 15 December 1998 on a forestry strategy for the European Union *Official Journal C 056, 26/02/1999 P. 0001 – 0004*).

[1099] Article 2 (i) of the EU Forestry Strategy also stresses *"the contribution of forestry and forest based industries to income, employment and other elements affecting the quality of life, whilst recognising the close connection between these two areas which influences their competitiveness and economic viability."*

[Forestry Strategy for the European Union, Council Resolution. Available at: http://www.fern.org/pubs/archive/forstrat.htm (Accessed on July 10, 2008).

[1100] While decentralization is a rather general term that refers to the redistribution of aspects of government authority on a territorial basis, devolution more specifically refers to a form of decentralization involving the dispersion of some legislative and executive powers over specific matters from a central government to elected bodies such as regional or municipal authorities. While decentralization can also refer to processes of administrative deconcentration, devolution requires that local bodies targeted by a redistribution of authority from the central government be accountable to their local constituencies for specific matters (these may include for instance NRM, health services, agricultural policies, etc.). In addition, they should be financially and politically autonomous from the central government at least in their routine operations (IFPRI 2007).

forests. The private sector and landowners are encouraged to regard timber as marketable produce to be grown on a rotational basis in the same manner as cash crops without restriction from the forest authority. Technical, financial and assistance in kind is provided to promote private, community and agroforestry in rural areas. This statement constituted one of the most salient features of the forest policy of 1986, and the greatest improvement on the 1932 forest policy.

The fundamental concepts that featured legislative developments of the mid-eighties include the major shift that is represented in the recognition of the role that local people can play in managing natural forests.[1101] The shift was apparent in the establishment of the extension section in 1987, which has changed the role of the forest service. Although based on central control, the forest service became supportive of local management. The policy of 1986 adopted a national approach that considers regional and local priorities. It distributed the responsibilities for management of forests between the national and regional authorities.

In pursuance of this policy and the need for restructuring of forestry administration to carry out the new responsibilities, both the Forest Act and the Forest National Corporation Act were promulgated in 1989 under the resolution of the Transmission Council of Ministers dated 1986 for establishing the Forest National Corporation. The Forest National Corporation was established as an independent body corporate, having perpetual succession, a common seal and a right to sue or be sued.[1102] Such independence marked the transition from a government department to a corporation with much more functional freedom and flexible procedure in financial and administrative settings.

The following paragraphs explain the findings QCA (qualitative content analysis) of the Forest Policy, 1986 and 1932 Central Forests Act:

[1101] Ibrahim, Abdelazim M. Past, present and future afforestation, reforestation and tree management models for farmland in the Sudan. Workshop: Management of trees for farmland rehabilitation and development. October 27 –November 7, 2000. Khartoum, Sudan. 11 p. (Ibrahim 2000).

[1102] Laws of the Sudan 1992.

In ***comparison between the 1932 and 1986 forest policies***, QCA indicates that the principal objective of 1932 and 1986 forest policies was the reservation, establishment and development of forest resources for the purpose of meeting the needs of the population for the forest product. Above all, the Forest Policy 1986 stressed the following points (1 – 9):[1103]

1) "The role played by forests in environmental protection;
2) Promotion and establishment of community, private and institutional forests;
3) Entrusted tree cutting outside forest reserves to the discretion of the General Manager of the FNC, provided that these are reserved immediately following their utilization, for the purpose of their protection and regeneration;
4) Enforced the utilization of tree stocks on land allocated for agricultural investment schemes in the form of shelterbelts and windbreaks;
5) Recognised popular and international efforts to participate in afforestation and forest protection;
6) Raised the national goal of the forest reserves to a minimum of 20% of the total area of the country for environmental protection and meeting the population needs for forest products.
7) Highlighted the role of forest extension; Conceptualized the multiple use of the forests
8) Made the General Manager of FNC the official councillor to the regional authorities and institutions on forestry matters."[1104]

The Forest Policy of 1986 is an update of an earlier document of 1932. The prime objectives of both statements were the reservation of natural forests, concentration of cutting and regeneration inside the reserve, development of forest resources for the purpose of environmental protection, and meeting population's needs of forest products. The Forest Policy (1986) recognized and encouraged people's participation in woodlot establishment and tree protection.

[1103] FNC (Forests National Corporation). Forest Policy of Sudan. Forests National Corporation, Khartoum, Sudan, 1986. (FNC 1986).
[1103] Ibrahim 2010.
[1104]FNC (Forests National Corporation). Forest Policy of Sudan. Forests National Corporation, Khartoum, Sudan, 1986. (FNC 1986).

This statement constitutes one of the most outstanding features of the Forest Policy and shows considerable improvement after the policy of 1932.[1105]

The following section paragraphs explain the salient features and goals of the Forest Forests National Corporation, Act 1989 (also called the Forests Act 1989):

The Forests National Corporation, Act 1989, referred to as The Forests Act 1989 is the most important Act regarding forest protection, It resulted from the merger of the two Forest Acts issued in 1932 and 1974, aiming at regulation and protection of tree species, soil and water resources, pastures, and any other natural resources in forest areas.[1106] This Act was enacted in accordance with the provisions of Articles 56 (2), and 56 (8) of the Sudan Transitional Constitution, 1985, by the Head of State and the Constituent Assembly. Under the 1989 Act, for the first time forest areas were classified with respect to different kinds of tenure systems: "private, community and institutional forest reserves"[1107] "to be managed by owners, committees and institution respectively,"[1108] in addition to the national and regional forest reserves which were recognized in the earlier legislation. All forest reserves should be under the technical supervision of the Forests National Corporation (FNC)."[1109]

The control over "tree cutting outside the reserves is tightened by the requirement of a licence or permit issued by the General Manager of FNC or other forest officer empowered by him to grant such licences or permits. Investors in agricultural schemes are obliged to leave 10% of the total area of a rain-fed schemes as shelterbelts and windbreaks and 5% on irrigated lands for the purposes of production and protection."[1110] "Investors also are obliged to

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[1105] Ibrahim 2010.
[1106] IFPRI 2007.
[1107] Ministry of Justice and Attorney General. 4 Laws of the Sudan, 101 (6th ed. 1992). s. 11 (d); The Forests Act 1989, s.11 (1) (d).
[1108]ibid., s11 (a), (b); The Forests Act 1989, s.11 (a), (b).
[1109] ibid., s18 (1); The Forests Act 1989, s.18 (1).
[1110] ibid., s20 (3); The Forests Act 1989, s.20 (3).

convert the cleared trees into forest products."[1111] The Act also requires any driver of any vehicle to obtain licence or permit when transporting forest when transporting forest produce, either from the competent authority, be it the General Manager of the corporation or his representative, in the case of forest produce taken from the national forests or from the area district in the case of regional forest or other forests (private, community and institutional) falling within the area of jurisdiction.[1112]

Furthermore, the Act imposes a deterrent penalty, the confiscation of any property, including the means of transport, used in the commission of the forest offence, for the benefit of the FNC.[1113] These are the salient features of the Forests Act 1989. The implementation of this Act was entrusted to the FNC and to locality Commissioners (who were empowered to enforce the Act). Stakeholders included the Ministries of Agriculture, Natural Resources, and Water, the regional governments, landowners, and producers and traders of forest products such as wood and honey.[1114]

In addition to the ***Forest Policy of 1986, the Forests Act 1989*** made provision for the involvement and participation of local people, communities and groups in development and conservation of forest resources. Since its promulgation, the Forests Act 1989 has been considered to be the single most important legislation to be passed into law by the local legislative to shape the management, conservation, and protection of forests.[1115] The fundamental concepts that feature the legislative developments of the mid-eighties include the major shift that is represented in the recognition of the role that local people can play in managing natural forests. The legislative developments this period has given recognition to new types of forest ownership, namely "private, community and institutional forest reserves to be managed by owners, committees and

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[1111] ibid., s20 (2); The Forests Act 1989, s.20 (2).
[1112] ibid., s16 (1), (2); The Forests Act 1989, s16 (1), (2).
[1113] ibid. S. 26; The Forests Act 1989, s.26.
[1114] IFPRI 2007.
[1115] FAOLEX. National laws and regulations on food, agriculture and renewable natural resources. Available at: http://faolex.fao.org/faolex/index.htm [Accessed: 12th September, 2012]. (FOALEX 2013).

institutions respectively, besides the national and regional forest reserves."[1116] All these forest reserves would be under the technical supervision of the Forests National Corporation.

The shift was apparent in the establishment of an extension section in 1987 and in the changes introduced to the role of the forest service. Although based on formal control, the forest service became supportive of local management. The formal management of forest and woodland resources was no longer the only option; local governance was another mechanism available for sharing the responsibilities of effectively managing the forest woodland resources.[1117] In the quest to implement the forest policy and its corresponding legislative enactments, aimed at improving the management, and protection of woodland resources, an emphasis was placed on strengthening the institutional structure and simultaneously the "Forests' National Corporation, Act 1989" was promulgated.

This Act was enacted in accordance with the provisions of Articles 56 (2) and 56 (1), of the Sudan Transitional Constitution, 1985, by the Head of State and the Constituent Assembly. Similarly, the Forests National Corporation (FNC) was established in 1989[1118] as a major institutional innovation, replacing the erstwhile Central Forest Administration. The FNC is charged with the responsibility for issuing directives or adopting measures to achieve full protection of the environment.[1119] It is also entrusted with the responsibility of providing technical supervision over the country's forests,[1120] and management

[1116] ibid.

[1117] Ibrahim, Abdelazim M. An overview of forest policy and legislation in the Sudan: With special reference to environmental concerns and impact on forestry. Workshop on Tropical Dryland Rehabilitation, Hytiälä Forestry Research Station, University of Helsinki. 11-14 June 2002. 9 p.

[1118] The Forests' National Corporation, Act 1989, s.3(1).

[1119] ibid.,s.4(a).

[1120] ibid., s.4(d).

of reserved areas country-wide.[1121] According to Bayoumi,[1122] the inclusion of members of outside sectors to the Board of Directors of the Corporation brings forward policy implications that need to be considered by foresters. In this regard, ideas and perceptions of individual communities definitely will be useful and increase the efficiency of the forest policy.

The Forests' National Corporation, Act 1989 without thereby invalidating legislation issued under these two Acts, repealed the 1932 Central Forests Act and Forests Subordinate Directorate Act. The main purpose of the Act was to define the tasks of FNC, notably the formulations of general policies regarding forests and environmental protection.[1123] In its principal functions and purpose, the Forests' National Corporation, Act 1989 pinpoints rational exploitation of the forest domain and its development as well as the ecological functions of forests in the protection of the environment;[1124] aimed to increase the size of areas to be reserved as forests to a minimum of 20% of the territory of Sudan;[1125] and recognizes the involvement of people in tree plantation for service and product functions.[1126] The Forests Act 1989 secures customary non-acquired rights[1127] and ownership, thus conceptualizing the philosophy of community forestry. The FNC, the Ministry of Agriculture, Natural Resources and Water, and the Commissioners of local councils in various regions were charged with the implementation of this Act.

An important prerequisite for the sustainable management of forests and forestlands is legislation to establish appropriate and reliable forms of land tenure. The land tenure system greatly influences the exploitation of natural

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[1121] ibid., s.4(g).

[1122] Bayoumi, Ahmed M. Forest potential of the Sudan. In: Badi Kamal H., Ahmed Eltayeb A. and Bayoumi, Ahmed M. (eds.). *The forests of the Sudan. Khartoum, Sudan*, 1989:142-166 (Bayoumi 1989).

[1123] The Forests Act, 1989.

[1124] Ministry of Justice and Attorney General. 5 Laws of the Sudan, 291 (6th ed. 1993), at s. 4 (1)(a).

[1125] ibid. s. 4(1)(g).

[1126] ibid. s.4(1)(h).

[1127] Ministry of Justice and Attorney General, 3 Laws of the Sudan, 104 (6th ed. 1992), ss. 5(1) and 6(1).

resources, the 1970 Unregistered Land Act of Sudan stated that all unregistered land is state owned, but local people have usufruct rights. Although the customary systems of land tenure define the use of communal lands to some extent, the scarcity of land-based resources and due to some development policies conflicts on land use have occurred. Being the freehand hold owner of land, the Government enjoys *locus standi* ("capacity to litigate") in relation to any dispute over benefits arising out of the same. [1128]

Contrary to the past practice, the Forests Act 1989 recognized new forms of forest ownership, national forest reserve,[1129] state forest reserve,[1130] private forest reserve[1131] and other forest reserve.[1132] The latter includes individually owned forests, communally owned forests and the forests of institutions.[1133] The Land Appropriation Act of 1986 defined the right of the government to sell and rent state land, besides allocating it for specific uses and to grant licences to investors. Those lands registered as government property on the basis of 1925 Land Settlement & Registration Act, together with land expropriated for the public benefit or considered as belonging to the state by default based on the 1970 Act were affected by this Act. The 1986 Act lacked a specific implementing agency; instead, the entire Council of Ministers carried out implementation responsibilities.

Sound forest protection within a particular area consists of limiting the cutting of timber that can be removed annually from the forest, in perpetuity, on a

[1128] FAO Forestry Outlook Study for Africa (FOSA): Sudan, 2000: 10.
[1129] The Forests Act 1989, s.11(1) (a).
[1130] ibid., s.11(1) (b).
[1131] ibid., s.11(1) (c).
[1132] ibid., s.11(1) (d).
[1133] ibid., s.11(1) (d), (i), (ii), (iii).

sustained-yield basis.[1134] It involves the practice of selection system[1135] of cutting depending on the biological requirements e.g. age- --class of that species of tree.[1136] In order to be realistic there is a need to strengthen research and ensure collection of reliable data to determine the maximum or optimum sustainable yield of species. This concept is not clearly underscored in the Forests Act 1989, but it is implicit in the general protection of forests and produce and protection of trees for special purposes;[1137] the protection of which involves prevention of fire[1138] and controlled cutting of trees for commercial purposes.[1139] The institutional basis for sustained yield management is the Forest Policy Statement of 1986[1140] which expressly recognized the concept.

[1134] "The yield that a forest can produce continuously at a given intensity of management is a sustained yield"
(Ford, Robertson F. C. (ed.). Terminology of forest science technology practice and products, Society of American Foresters , Washington, D.C., U.S.A. 1983). (Ford 1983).

[1135] Used correctly, the term "selection system" or "selection cutting," or "selection silviculture" implies the implementation of specific silvicultural techniques—usually either "single tree selection," "group selection" or a combination of the two—to create an uneven-aged or all-aged condition in a forest stand, one more akin to a late successional or "climax" condition (McEvoy, Thomas J. *Positive Impact Forestry - A Sustainable Approach to Managing Woodlands.* Island Press, New York, DC. , 2004) (McEvoy 2004).

[1136] Forests Act 1989.s. 17(a).

[1137] ibid., s. 17.

[1138] ibid. s.13(c), 15(1), (a).

[1139] ibid. S. 18(1).

[1140] Forest Policy, 1986. Art, 5(a) (ii) spells out one of the objectives of the Statement as:

> "Protection, conservation and management of the national forest in which the application of proper management planning is pursued so that the yield is regular and sustained."

The following statements describe the ***comparison of the 1932 Forest Ordinance against the progress of the 1989 Forest Act*:**

1. The 1932 Central Forests Act and Forests Subordinate Directorate Act were replaced by a single legal code (Act) namely, the Forests National Corporation, Act 1989. These changes made it easy for court procedures owing to distinctly and sharply defined statements of the law.
2. On the basis of ownership and management authorities, the Act categorized the reserved forests as national forests, regional forests and other forests (which include private, communal and institutional forests).
3. The Act gives the Federal Minister of Agriculture the power to establish standards and guidance to regulate and protect unreserved forests or to any person to whom the Minister delegated his power.
4. The Act gives owners of private, community and institutional forests a legal right to harvest or to utilize their growing stocks as they deem fit without interference from the FNC.
5. The Act obliges the land owners and investors of any kinds of schemes to inform the FNC before a reasonable time in order to investigate the forests resources and the number of trees and the best possible way to dispose of forest products without any environmental degradation.
6. The Act obliges and requires agricultural investors to set aside 10% of rain-fed and 5% of irrigated schemes for shelterbelts or forests cover.
7. The Act obliges that all trees on land meant for clearing for cultivation be used in supplying useful products and not to be burned.
8. The Act increases the penalties for illegal forestry operations.

4.1.5 Potential effect of foreign law on the Sudanese traditional forest law, forest, land tenure system and other related land issues

[Research question 2(c): To what extent has the development of the common law of land since its importation in the 19th century in Sudan occurred and how has it been distinct from local circumstances?]

4.1.5.1 Potential effect of foreign law on the Sudanese traditional forest law

In answer to this question, one would argue that the correct legal code is critical for efficient natural resources management, which is in turn critical for livelihood and economic development. In the Sudan, most of the current laws concerning land use are to be classified as legal transplants imposed during occupation[1141] by the British colonial powers.

This study addresses the case of the Sudan, a country that fell under the administration of the British Government in the 19th century, and in 1956, gained independence. As mentioned earlier, the concept of legal transplantation is intrinsically linked with the definition of forestry as public property. As background information of the discussion topics, this section examines the process of legal transplantation in the Sudan and its effects on forest policy and legislation.

In the late 18th century, most countries in sub-Saharan Africa, including the Sudan, experienced colonial rule. In the Sudan, as in other African countries, the

[1141] Under the UN Charter's ban on aggression and occupation, the rule an occupier chooses to impose is no longer considered to be *law;* anyhow not *law in force*. Would that rule before WWII had been legal and, therefore, have remained legal until officially repealed? This could be the case. However, this doesn't mean that sovereign states after WWII are fully free to act or not when *human rights* are involved; which could be the case with the treatment of tropical forest and its (former) inhabitants.

legal framework of a country consists of a mixture of domestic and regional law, international law, customary law, case law, and early 20th century English colonial laws.[1142, 1143] The contemporary environmental conservation concerns were introduced into African law in the 1900s[1144] after the British had introduced their 'conventional forestry' approach in the 1800s. The so-called 'contemporary environmental conservation" strategy was completely unknown in pre-colonial African societies.

What was known and practised by Africans during the (pre-colonial) era was what this study suggests to term, "*Traditional holistic conservation strategy*" (THCS). THCS describes the unique relationship between livelihood security and resource conservation strategy enshrined in traditional knowledge systems with a focus on conservation of the natural environment. Pre-colonial notions of natural resource use in the country were based on communal use of resources. As documented, it was the responsibility of the heads of villages or clans to promulgate new rules and resolve environmental conflicts.[1145] According to Barrow, [1146] in precolonial times, every kingdom had its system of rules.

Pre-19th century British have imposed English common law upon the people of the Sudan alongside the customary rules. During the colonial era, the natural resources came under state ownership and management. Local people were

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[1142] Gibson, Eugene and Halter, Faith. "Strengthening Environmental Law in Developing Countries." *Environment,* 1994: 36 (1): 40-43. (Gibson 1994).

[1143] Caplan, Gerald M. "The Making of 'Natural Justice' in British Africa: An Exercise in Comparative Law," 1964: 13 *J. Pub. L.* 120. (Caplan 1964). *See also* Daniels 1964; De Smith, Stanley. A. *The New Commonwealth and its Constitution*, London: Steven & Son, 1964. (Daniels et al. 1964); Marshall, Headley H. "Statute Law Revision in the Commonwealth." 13 *Int'l Comp. LQ* 1407. 1964. (Marshall 1964).

[1144] Kameri-Mbote and Cullet 1997:24.

Rahhal, Suleiman and Abdel Salam, Ahmed H. 'Land Rights, Natural Resources Tenure and Land Reform.' A Paper for the Committee of the Civil Project. Issue Paper E-2, 2006. (Rahhal & Abdel Salam 2006).

[1146] Barrow, Edmund G. C. The Dry Lands of Africa. Local Participation in Tree Management. Initiative Publishers Ltd., Nairobi, Kenya. 1996 (Barrow 1996).

excluded[1147] from the forest and land, priority being given to national parks and the reserving of land for colonial settlers.[1148] As a result, several communities experienced relocation from their homelands and thus were denied access to legally protected areas, game parks, and their resources. In the Sudan, the reserved forests continued to be under ineffective protection and without management plans until today, in some cases.

As in many former British Colonies in Africa, Sudan inherited the colonial legislation regarding land, forestry, fauna and fishing. As earlier discussed, the colonial laws were defectively transplanted, which means the Sudan's context was not well studied and the customary laws were not adequately recognized. Therefore, the received laws lacked the essential legitimacy from the people.

The conflict between the discourse of forestry as **"*state* or *public property*"** on the one hand, and the traditional forms of forest management and utilization on the other, reveals much about power relations in the forestry sector in colonial Sudan. As earlier discussed, and it appears from a variety of sources, forestry in British colonial sub-Saharan Africa, including the Sudan was referred to as 'state or public property', i.e. conventional centrally-led forestry. As such, it was based on the idea that forestry as a long term and large-scale activity could best be implemented by a professional forest service, providing raw materials for the industry and thereby contributing to economic growth and rural development [1149,1150] Therefore, the colonial state declared land, water and trees 'state property'.

[1147] In some parts of the world, existing forest laws exclude local people from access to forest resources, forcing them to operate illegally to meet their basic livelihood needs (European Commission 2004, 2).

[1148] Beinart, William. African history and environmental history. *African Affairs* 2000, 99:269-302. (Beinart 2000).

[1149] Duerr, William A., Teeguarden, Dennis E., Christiansen, Neils B. and Guttenburg, Sam. *Forest resource management: Decision making principles and cases,* Philadephia: Saunders, 1979. (Duerr et al 1979).

[1150] FAO. 'Tree growing by rural people.' FAO Forestry Paper No. 64. FAO, Rome, 1985. 130 p. (FAO 1985).

Potentially, forest management was associated with the elaboration of the state – its functional diversification. The colonial state in the Sudan that way not only grew in absolute size, but also 'asserted control over an ever-widening range of human activities'. [1151,1152] Massive transplantation of legal code authorized the colonizers to quickly overhaul the Sudan's traditional customary law, and substitute its traditional institutions by their own. In the process local people's rights to harvest and dispose of trees were significantly restricted. Resources including trees and lands were held in trust for local people by the colonial powers. This doctrine had significantly and consequently affected local people's land rights during the period of colonialization and in contemporary Africa which still reflects in the reservation practice of some states. The trusteeship doctrine resulted in the establishment of reservations or reserved lands.[1153]

The main body of rules governing natural resource tenure[1154] is a remnant of the colonial era, which ushered in the merging of sovereignty and property rights, based on early claims by colonizers to promote economic growth for both

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[1151] Taylor, Lori L. "Government Budgets and Property Value," *Economic Review* 1991, 1-7. (Taylor 1991).

[1152] Adei, Christopher. African Law South of the Sahara. Agenda 21, 8.21. 1981. Available at:
http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21chapter8.htm
[Accessed : 27th September, 2007] (Adei 1981); Ojwang, Jackton B. "The Residue of Legislative Power in English and French-speaking Africa: A comparative study of Kenya and Ivory Coast," *Int'l & Comp. L.Q.* 1980 (Ojwang 1980); Sevareid, Peter. "The Future of Customary Law," *Afr. J.* 1983a: 14 (34) (Sevareid 1983a); Sevaried. Peter. "A Basic Bibliography of Customary Law for Anglo-phonic Africa," 1*Afr. J.* 1983b, 14(47). (Sevareid 1983b).

[1153] Gilbert & Couillard 2009.

[1154] Tenure, as defined by Bruce (1989) is a set of rights that a person or some private entity holds to land or trees. It addresses both ownership and access to resources (Bruce, John W. Country profiles of land tenure: Africa, 1996. Research Paper No. 130. Land Tenure Center, University of Wisconsin-Madison, 1998). (Bruce 1989).
Tenure is an influencing factor in determining local people's willingness to participate in the management of natural resources (Bromley, Daniel W. The commons, common property, and environmental policy. *Environmental and Resource Economics*, 2(1): 1-17).

colonizer and colonized alike. Although many texts were subsequently adopted[1155], the colonial legislation still subsists in many domains. The colonial state declared land, water and trees to be "public property." The independent state did not disturb the inherited system of natural resource management and therefore adopted the various colonial laws and regulations on land, wildlife, water, and forest management. The Government has reviewed some of the inherited natural resource legal regime, but it still to a large extent echoes its predecessor.[1156]

The centralized forest management that was introduced in overseas dominions of the colonial powers from the middle of the 19th century focused on capital accentuation and environmental stability to the exclusion of community welfare and peasant security.'[1157] As a result of the foregoing, there has been a significant difference in social, economic and institutional context between origin and transplant country, the latter in this case being the Sudan. This difference creates different conditions for effectuating the imported legal order in the latter.[1158] It seems that this set of colonial texts organizes protection with little environmental effectiveness. Elaborated at a time when conceptions about natural resources protection were still recent, they are limited in general to a utilitarian approach.

Conventional forestry approach also known as conventional forest protection approach, was based on the understanding that forestry as a long term and large-

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[1155] Differences in the transplanting process may impact the receptivity of the transplants, where receptivity is defined as the country's ability to give meaning to the imported law. A voluntary transplant increases its own receptivity when it makes a significant adaptation of the foreign formal legal order to initial conditions, in particular to the pre-existing formal and informal legal order (Bertowitz et. al. 2003).

[1156] Glover, E. K. Tropical dryland rehabilitation: Case study on the participatory forest management in Gedaref, Sudan. D.Sc. Dissertation. University of Helsinki, Tropical Forest Report No. 27. 2005.

[1157] Odera Jeff. 'Lessons learnt on Community Forest Management in Africa.' A report prepared for the project: Lessons Learnt on Sustainable Forest Management in Africa, Nairobi, Kenya, 2004. (Odera 2004).

[1158] Berkowitz, D., Pistor, K. and Richard, J. The Transplant Effect. *The American Journal of Comparative Law* 51: 163-191. 2003; Henrÿ 1983 p. 87.

scale activity could be best implemented by a professional forest service. The idea was forestry plays significant product roles (e.g. raw materials for industries) and ecosystem service roles (e.g, maintenance and improvement of climatic in the Sudan, and conservation and regulation of water supplies by protecting water catchment areas, and therewith, it contributes to economic growth and rural development. Certain themes (commercial use, state forest control) were presented as the 'natural' focus of forest management, while other themes (subsistence use, local forest control) were marginalized. However, the imposition of colonial conservation management on the people of the Sudan and landscapes resulted in efforts to obliterate these colonial land uses and their long-term impacts

Colonial foresters viewed this process of centralized and top-down approaches to forestry decision-making as being an inevitable part of development in the Sudan's maturing forest industry. Sudan's forests were not being managed in the 'best' interests of Sudanese. What was clear, however, was that the colonial discourse of forestry as development did not square with the perceptions of a large proportion of the Sudanese population. Development was in the eye of the colonial beholder.

The importance of environmental legislation and subsequent changes due to legal transplantation in the Sudan has since long been acknowledged. Many of the environmental statutes enacted during the colonial era and still enforced influence the management of the Sudanese natural resources, including forests. Available evidence from the Sudan suggests that the enforcement of transplanted law is often problematic. The current study may single out weak legal institutions as a key impediment to future growth and development in the Sudan.

Environmentalism [in Africa] has been devoid of numerous traditional approaches and environmental values treasured in indigenous knowledge systems for conservation of natural environment.[1159] The indications are

[1159] Brown., Karen. 'Trees, forests and communities': some historiographical approaches to environmental history on Africa. *Area,* 2003: 344 (Brown 2003: 344). citing: Fairhead, James and Leach, Melissa. Reading forest history backwards *Environment and History, 1995, 1*: 55–91 (Fairhead and Leach 1995) and Fairhead,

therefore that environmentalism was introduced in Africa by environmentalists from developed countries who found it easier to promote implementation of conservation measures in Third World countries than in their part of the world (the developed world), which was seen as already affected by various adverse influences on its biophysical environment as well as human health.[1160]

Because of these basic assumptions, said frequently to underlie the early forestry efforts in tropical countries, most attention centred on the creation of forest management systems for legally-gazetted forest land, managed by public forestry services for long-term national interests. The main objectives of these forest management systems were the production of industrial timber and the maintenance of protection forests.[1161]

A contributing factor was that the pre-colonial laws in the Sudan were deeply entrenched in the customary laws. People have inherited strategies and mechanisms in settling disputes that were used by their ancestors. As discussed earlier, it is known that the transplanted laws failed in some ways, because the assumption of the customary laws was different from the assumption of the imported western laws.

As explained earlier and a legacy of colonial legislation, Acts prohibited in the reserved area stated in Article 15(1)(a - f) of the Sudan Government, National Forests Act of 1989, Khartoum, Sudan.[1] In addition, Acts prohibited outside a reserve are also stated in Article 16 of the Forest Act of 1989.[1] Despite the guarding and patrolling systems emphasized in the National Forest Act of 1989, the reserved forests continued to be accessed illegally by the local people for wood gathering and agriculture. Nevertheless, reserved forests continued to

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James and Leach, Melissa. *Misreading the African landscape: society and ecology in a forest–savanna mosaic,* Cambridge: Cambridge University Press, 1996 (Fairhead and Leach 1996); *See also*: Forsyth Tim. "Environmental Social Movements in Thailand: How Important is Class?" *Asian Journal of Social Sciences* 2001:35. (Forsyth 2001).

[1160] Anderson, David and Grove Richard "The Scramble for Eden: Past, Present and Future in African Conservation." Anderson, David. and Glove, Richard (eds.), Conservation in Africa-People, Policies, Practice. Cambridge: Cambridge University Press, 1987: 1 at 5. Cited in Kameri-Mbote and Cullet, 1997 (Anderson & Grove 1987).

[1161] Wiersum 1996:3.

be under ineffective protection and without management plans.[1162] The popular response to these measures included diverse clandestine activities – theft of forest produce and the illegal grazing of cattle, for example.

Consequently, Sudan has been registering a steady decline in forest resources because of these factors and forces. Regarding change in forest cover, between 1990 and 2010, the region lost an average of 321, 600 ha or 0.42% per year. In total, between 1990 and 2010, Sudan lost 8.4% of its forest cover, or around 6, 432, 000 ha.[1163] A vast area of forestland within savannah zone has been degraded due to the mismanagement of natural forests and the extensive felling of trees for forest products and agriculture; thus mainly through failure in the enforcement of land use policies, laws and practices.[1164] Almost every forest reserve has been affected.

Sudan contested colonial forestry via some basic ways, and by extension, the discourse of forestry as development propounded by colonial foresters. The first way relates to those activities that were dubbed forest 'crime' by the state. Such crime involved farmers and shifting cultivators utilizing what Scott[1165] terms 'everyday' forms of resistance: resistance that is secret, often individual and found everywhere, but potentially poses significant challenge to the political and economic *status quo*. The importance, which the colonial state attached to everyday resistance, is indicated by its upkeep of extensive range of records on such offences. Local people's resistance was focused on the question of the limitation of popular "***access to reserved forests"***. Local people required access to these forests to obtain timber for housing, wood for fuel, bamboo for mats, fences and fishing traps, and a wide range of other forest products for dyes,

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[1162] Glover 2005:36.

[1163] FAO. 'Global forest resources assessment 2000.' Main report. FAO Forestry Paper No.140. Rome, 2001. (FAO 2001).

[1164] Glover 2005: 13; 65; 96.

See also: Edinam K. Glover and Elsiddig, Elnour. A. 2012. The causes and Consequences of Environmental Changes in Gedaref, Sudan. *Land Degradation & Development,* 23(4): 342; 347. (Glover & Elsiddig 2012).

[1165] Scott, James C. *Weapons of the weak.* New Haven: Yale University Press, 1985. (Scott 1985).

medicines and fruits. The impact of this destruction resulted in declining biodiversity. The current rate of deforestation has significant social, economic and environmental consequences, with serious negative local, regional and global implications.[1166]

Land degradation resulting from human activities has turned out to be a severe problem in the Sudan, affecting the livelihoods of millions of people. The problem is partly linked to the regulation concerning natural resource tenure and use, which is a remnant from the colonial era in most sub-Saharan African countries. One of the problems entailed by this has been the lack of access by the local people to the forest, which has then led to unsustainability in the use of the resource. Denying legal access to forest resources promotes illegal behaviour. Lack of legal accessibility to forest resources due to extreme limitations promotes illegal extraction of forest resources and illicit encroachment of forest land or land-use change.[1167] In turn, unsustainable wood harvesting has led to deforestation, forest degradation and loss of biodiversity. Deforestation and lack of land tenure security and use are the main threats to forest law compliance in the Sudan.

The reasons that centralized and top-down approaches to forestry decision-making fail are well known and have been amply documented in many other countries and through a limitless number of articles, reports and books. Examples have been cited of the "fortress forestry"-based approaches to forest management in Madagascar, about which the author pointed out that a high degree of reliance on centralized and top-down control approaches coupled with inadequate Indigenous peoples' rights and their control over their ancestral lands, territories, and natural resources, approaches for enforcing regulations resulted in 'killing' control.[1168] Similar results have been reported elsewhere e.g.

[1166] Odera Jeff. Lessons learnt on Community Forest Management in Africa. A report prepared for the project: Lessons Learnt on Sustainable Forest Management in Africa, Nairobi, Kenya, 2004. (Odera 2004).

[1167] FAO/IITO

[1168] Weber, Jacques. L'occupation humaine des aires protégées a Madagascar: diagnostic et elements pour une gestion viable. *Natures Sciences Sociétés* , 1995, 3 (2),: 157-164. (Weber, 1995).

in Cameroon and DRC in Central Africa, Ghana in West Afeica and Uganda in East Africa.[1169] Recognition of the limitations of over- centralized and top-down approaches to forestry decision-making in the Sudan prompted an examination of the potentials for a major shift towards community-based forest management.[1170]

Law in the colonial apparatus was highly regulative and colonial 'environmental' laws were coercive.[1171] With the following, Chanock throws his light upon the coercion:

> "The law was the cutting edge of colonialism, an instrument of the power of an alien state and part of the process of coercion. And it also came to be a new way of conceptualizing relationships and powers and a weapon within African communities which were undergoing basic economic changes, many of which were interpreted and fought over by those involved in moral terms. The customary law, far from being a survival, was created by these changes and conflicts. It cannot be understood outside of the impact of the new economy on African communities. Nor can it be understood outside of the peculiar institutional setting in which its creation takes place. African legal conceptions, strategies and tactics are formed both by the impact of capitalism and by

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[1169] World Bank. *A legal and institutional framework for sustainable management of forest resources in Southern Sudan : Policy note.* Washington, DC: World Bank. 2010: 9 – 10. (World Bank 2010).

[1170] World Bank. *A legal and institutional framework for sustainable management of forest resources in Southern Sudan : Policy note.* Washington, DC: World Bank. 2010: 9 – 10. (World Bank 2010).

[1171] Raz (1980) argues that the three most general important features of law are that it is normative, institutionalized, and coercive. It is described as normative in the sense that it serves, and it is meant to serve, as a guide for human behavior. It is institutionalized in that its application and modification are to a large extent performed or regulated by institutions; and it is coercive in that obedience to it, and its application, are internally guaranteed, ultimately, by the use of force (Raz, Joseph. *The Concept of a Legal System: An Introduction to the Theory of Legal System.* Oxford University Press, USA, 1980: 5). (Raz 1980).

This being the case however, the National Environmental Action Plan (NEAP) has recognized that command and control approaches which put emphasizes on specified laws and standards are ineffective because it is difficult to attach value to biodiversity resources (Shah and Muramira, "The Integration of Economic Measures into the National Biodiversity Strategies and Action Plan of Uganda and Eastern Africa" IUCN-The World Conservation Union, July, 2001).(Shah & Muramira 2001).

interaction of the communities thus affected with the concepts, strategies and power of British colonial legal institutions "[1172]

Chanock's statement provides valuable insight into the influence and impact of the common law on indigenous legal systems of English-speaking sub-Saharan Africa. Available statistics indicate that since the turn of the 19th century, African statute law has focused on conservation legislation. The primary concern has been for the protection of wildlife; however there also have been collateral efforts to protect other natural resources - flora, soil and water:[1173] Additionally, Chanock [1174] points out that the law was severe in its efforts to refine and civilize its subjects. While certain themes (commercial use, state forest control) were presented as 'natural' focus of forest management, others (subsistence use, local forest control) were marginalized.

4.1.5.2 Potential effect of received law on the Sudan's land tenure policies and legislation

Sudan is noted to have four land tenure systems, namely: (a) communal ownership (whereby land is communally owned by a particular group and this tenure system occupies vast amounts of land in most of rural Sudan; (b) individual registered ownership – use and occupation of land rights and interests in land which could take the form of either freehold or leasehold. Individual ownership of land could be found in riverine and urban areas. It could also be in irrigated, mechanized, or rain-fed agricultural land; (c) government-owned land

[1172]Chanock, Martin. Law, Custom and Social Order: The Colonial Experience in Malawi and Zambia, Cambridge, Mass.: Cambridge University Press, 1985:4 (Chanock 1985).

[1173] Orsinger 1997.

[1174]Chanock Martin. *Law, Custom, and Social Order: The Colonial Experience in Malawi and Zambia.* Portsmouth, N.H.: Heinemann, 1998. Original edition, New York: Cambridge University Press, 1985:229. (Chanock 1985)

(vast amounts of Sudan's rural land area falls by default to government ownership), according to the relevant Sudanese statutory laws and (d) privately owned lands.

Land laws in Sudan comprise both statutory law and customary law. The country's legislation in 1970 recognised state and private property and granted property rights to private landowners in the riparian Northern Sudan, whether held individually or in association with others. The ownership of land had earlier been registered in this area. All land in the Sudan is owned by the state.[1175] A possible reason might be for the government to ensure that state land is made use of judiciously and productively, in agreement with development plans.

According to Manger[1176] the state ownership has been used to provide the government liberty in land acquisition and distribution in development project areas. As a result, land on the outskirts of a major development project area has continued to be administered by traditional authorities. This leasehold system augurs well with indigenous tenure models which strive to incorporate any land, knowledge or interests in land owned by a tribe or community. The state is considered to be a successor to the tribe, the state leases replace the tribal leases.[1177]

The land tenure policies and legislation pursued since early 1970s became a source of a disincentive to efficient utilization of agricultural and pastoral development in the Sudan. Due to this land use policy, most areas experienced ethnic conflict over natural resource use and grazing, and this had consequently hampered efficient and sustainable agricultural and pastoral development. The

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[1175] Glover, Edinam K. Land Tenure and Resource Management in the Greater Horn of Africa Region. ***Horn*** *of Africa Journal* 1(1), 2011:2 (Glover 2011).

[1176] Manger, Leaf O. Managing pastoral adaptations in the Red Sea Hills of the Sudan. *Dryland Network Programme, International Institute for Environment and Development*, Paper No. 2 September, 1994 (Manger 1994).

[1177] Manger 1994 citing Bruce J. The variety of reform: A review of recent experience with land reform and the reform of land tenure, with particular reference to the African experience. Paper presented to conference on human rights in a post-aparthied South Africa constitution. Center for the Study of Human Rights, Columbia University, 1989.

Land Settlement and Registration Ordinance 1925,[1178] one of a few Sudanese statutes, defined "Land" to include:

> "benefits to arise out of land, buildings and things permanently fixed to land and also any interest in land which requires or is capable of registration under the ordinance other than a charge"[1179]

Things permanently fixed to land such as buildings, trees and minerals are deemed to be part of the land. In the ordinance, lands which need or are qualified to be registered have been stated to embrace the right to cultivate; the right to pasture and the right to forest produce.[1180]

These rights are categorized as land because they directly relate to the uses to which the land is put. A registration officer can register usufructs with relevant documents confirming ownership. The holder of such rights can enjoy or use the land, i.e. for grazing animals or wood cutting for a long time.

In the Sudan, there is a law protecting overriding interests which are described as interests to which a registered title is subject, although they are not written in the register. This law is binding both in the registered proprietor and on a person who obtains an interest in the property. Pursuant to section (S.) 27 (c), (d), (e) of the Land Settlement and Registration Ordinance 1925, Ordinance 406,[1181]

> "Registered land is subject to rights and interests even without notification in the register such as the right of way; right of water; easements, rights to mines and minerals; and the right to date palm trees."[1182]

Such recognition in the Ordinance is conducted with due respect to the local customs, traditions and land tradition and customs established by immemorial usage. The Forests Act 1989 recognizes customary rights in a reserved area. As

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[1178] 1 Laws of the Sudan 406 (5th ed. 1976).

[1179] Ibid. S.3.

[1180] 1 Laws of the Sudan 406 (5th ed. 1976), S.13 (iii).

[1181] ibid. S.27(c), (d), (e).

[1182] ibid.

explained earlier, small areas of lands scattered all over the Sudan were covered by the system of land settlement and registration and large span of land remained either occupied by persons and unregistered or unoccupied and unregistered, so it was decreed under the Land Settlement and Registration Ordinance, 1925 that:

> All waste, forest and unoccupied land were deemed to be the property of the Government until the contrary was proved. [1183]

The Unregistered Land Act of 1970[1184] declared that all waste, forest and unregistered lands were government property. The Unregistered Land Act, 1970 states that:

> "All lands, whether waste, forest, occupied or unoccupied, which is not registered before the commencement be the property of the Government, and shall be deemed to have been registered as such, as if the provisions of the Land Settlement and Registration Ordinance have been duly complied with." [1185]

Prior to the promulgation of the Act, the government had retreated from meddling in individual customary rights to unregistered land and in the late 1980s, it again adhered to this policy. Even though the Unregistered Land Act 1970 was revoked, it has left its mark on land tenure and forest tenure. The suspension of the settlement and registration, and the prohibition of the right to establish easement or to acquire the right or title to land by prescription,[1186] has an adverse effect on conservation of forest resources because as people are denied security of title to land, they will divert their attention and exert pressure on natural forests and marginal land and eventually deplete these resources. The Act enables the Government of the Sudan to exercise state power as the land is brought under its direct control and management.

[1183] 1 Laws of the Sudan 406(5th ed. 1976), at S. 16(c).
[1184] Government of Sudan (GOS). The Unregistered Land Act of 1970. Ministry of Justice, Khartoum, Sudan, 1970 (GOS 1970).
[1185] 5 Laws of the Sudan 226(5th ed. 1976), at S.4 (1).
[1186] ibid. S.5.

4.1.5.3 Consistency and pluralism of sources of law due to legal transplants in the Sudan

In the Sudan, as in many other sub-Saharan African countries, an enormous difficulty in in tackling illegality within the forest sectors of the Sudan concerns the inconsistency of forest laws with alternative environmental laws The foregoing, among others highlights the fact that the transplanted law by colonial masters has not been compatible with the preexisting order. It has instead, consequently and adversely led to problems that characterize the biodiversity conservation legislation up to a recent date, namely, multiplicity, inefficiency and often confusion. The multiplicity of sources of law results from the fact that elaborated in the colonial and post-colonial contexts, they were not compatible with the original local legal orders. The latter was ad hoc legislation, destined to manage punctual situations. This case-by-case approach, referring to legislating just as the situations arise, inevitably entailed some consequences that hindered the pursuit of coherent and effective actions.

Land tenure system as a diverse and complex social institution in the Sudan originated from the coexistence of customary and statutory tenure systems. It helps govern the relationship among people with respect to assets such as land and forests. Legal principles fundamental to traditional land-holding systems are excluded from national land tenure system: considered not agreeable to incorporation with statutory land law or administration systems; thus in the eyes of the Government of the Sudan, the Sudan's traditional leaders, majority of rural people's landholding status is precarious, if not actually illegal. This legal pluralism, originating from the colonial era and the way the Sudan was established, results in a level of insecurity about land rights and prompts many land related conflicts, for which the many different arbitration bodies (customary, administrative and judicial) find it impossible to search for lasting solutions.[1187]

Confusion concerning the multiplicity of texts is added by the multiplicity of actors on the ground, leading to confusion in the sharing of roles and responsibilities linked to the application of texts. This legislation has turned out to be ineffective. This is a result of the fact that most of the enforcement texts in the legislation were disseminated in the administration, without hold over the realities on the ground. These texts imprinted with the colonial spirit resolutely

[1187]Delville, Philippe Lavigne. Harmonising formal law and customary land rights in French-speaking West Africa. Evolving land rights, policy and tenure in Africa. 2000: 1 (Delville 2000).

opted for excessive repression of the populations that did not understand why on their own land they were excluded from the exploitation of the natural resources (e.g. the case of forest reserves).

Another key factor is the failure of a legal framework to keep pace with current environmental challenges. This is further hindered by weak legal institutions and enforcement mechanisns, which prevail in the Sudan-[1188] This problem specifically relates to obsolete/weak or ineffective forest policy and legal frameworks for forest law enforcement and governance. in the Sudan: The overlap of the many legislations related to forestry that lack harmonization induce uncertainty and confusion as to the responsible authority for law enforcement. This confusion is very much pronounced in terms of activities related to fire fighting and patrolling by forest guards and matters related to overall accountability in law enforcement.

In attempts to mitigate the perverse effects of these situations, the authorities often proceed to the adoption and/or rereading of some measures. The Agrarian and Land Reorganization, Forestry Code, Water Code and Draft Orientation Texts on Decentralization may be pointed out as examples. in some states new instruments that do not follow the conventional command-and-control formula have been created to promote the sustainability of forestry. The experience gained in using these instruments may be useful for developing new instruments to this end in many developing countries as well. There is empirical evidence that a well-designed strategy for institution building should take into account local knowledge and should not over-emphasize best practice blueprints observed in developed countries at the expense of local participation and experimentation. While many, although not all of the countries that received law from the Western law not only accelerated the development of a formal legal order, but altered the preexisting order profoundly, and not infrequently with detrimental outcome.[1189]

4.1.5.4 The diversity of arbitration authorities

The diversity of arbitration authorities (e.g. traditional leaders, project technicians) on the ground and with unclear links between these actors, create confusion in the sharing of roles and responsibilities linked to the application of the law such that no arbitration can ever be accepted as final, because a decision

[1188] IUCN 2009

[1189] Rodrik, "Institutions for High/Quality Growth: What they Are and How to Acquire them." *35 Studies in Comparative International Development* (3), 3 (2000).

by one party may be overruled by another. In effect, the outcome of cases becomes unpredictable and all forms of arbitration may be challenged.

Thus, arbitration problems induce conflicts between different activities on land and difficult for the authorities to resolve or to ensure development programmes by different stakeholders are in harmony with one another, simply due to divisiveness. The problem is made worse by the multiplicity of interrelated legal texts with colonial and post-colonial connotations are all too unfamiliar and poorly understood by most local actors as the approach of promotion and protection of the environment. There is a need to harmonize the different development activities in order to foster the optimal land use and control of environmental degradation.

4.1.5.5 Conflicts due to legal transplants

Equally important, is the issue related to the effects of foreign law due to colonialism with its consequent outcome regarding forests as "public property." Sudan is a country that has a long tradtion of weak rule of law under British rule, between 1898 and 1956.[1190] The occurrence of colonization induced a host of circumstances in which colonial law came into contact with customary law to change the latter into what they call a kind of neo-customary law no longer equivalent to the customary legal usage of pre-colonial era. In the Sudan, precolonial dispute settlement of resource-related conflicts is deeply rooted cultural norms and coflicts were traditionally managed at the local level.

The Sudanese culture classifies rangeland as communal property and customary law makes it illegal to make and hold private pasture reserves in any forms. The control of the best pasture on lands privately controlled has resulted not only in degradation of the non-enclosed communal areas but also caused internal conflicts at different times in different places.[1191] There is an increasing realization among the managers of the resources of the people of the Sudan, that

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[1190] Massoud, Mark Fathi. *Law's Fragile State: Colonial, Authoritarian, and Humanitarian Legacies in Sudan*. New York: Cambridge University Press. 2013: 53 (Massoud 2013:53).

[1191] Tache, Boku. Pastoral Land Use Planning and Resource Management in Southern Oromia: An Integrated Landscape Approach, Final Report Submitted to SOS Sahel Ethiopia, Addis Ababa. 2009:25 (Tache 2000).

old policies, legislation and practices are no longer adequate to meet the new challenges of forest resource conservation.[1192]; [1193]

The very volume of the new laws in post-colonial era, tends to re-create the same problem with the over-regulation of forests that existed under the colonial era - a top-down command-and-control approach to forest governance. These occasionally lead, for example, to a circumstance where the forest authority or a customary forest owner is weak to keep their forestlands free of tresspassers and from large-scale mechanised agriculture, overgrazing, extraction of timber products, urban expansion and mining because their claims are based on laws external to the forest sector.[1194]

For all the progress that the Sudan has made since 1956 it became independent, an enoumous amount of work remains to be done. The upsurge of current post-colonial laws that has been issued from the Sudan's Parliament in the course of recent years, has brought about numerous new codes and laws that are encumberred historically with ambiguities, of internal conflicts in national legal frameworkand a significant number of other pieces of legislation that seem to conflict.

Colonial law introduced for environmental management and land has contributed to a series of devastating conflicts over resources and other subjects instigated by historical legacies, among the diverse cultures and religions of the Sudan. As they evolved, these conflicts put neighbour against neighbour, citizens against business and government, and communities against business, government, and each other. Accumulated environmental damage, large-scale loss of life, mass population displacement, extensive destruction of human capital and infrastructure, and widespread violations of human rights remained as the landmark of war.

Further, the collapse of any rule of law has exacerbated the effects of the conflict on the displaced and their host communities. Mechanisms of customary law eroded as communities disintegrated in some parts of the Sudan, access to justice, penalization of perpetrators, and sufficient awareness of rights remain critical problems until today. A discourse has been developed about colonial forestry in the Sudan centered on precisely this notion of development. Yet, as with many discourses, the discourse of forestry as public property was vital as much for themes it marginalized as for those it privileged. Themes marginalized in this manner included local forest use, traditional (indigenous) forest

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[1192] Bigg, Tom. (ed.). *Survival for a small planet*. James & James/Earthscan, 2004: 118, 227-245. (Bigg 2004).

[1193] Glover 2005:112.

[1194] FAO/IITO:10.

management, marginalized role of women and the role of conflict in colonial forestry. [1195], [1196]

In appropriate implementastion land use policies and legislations have resulted in a series of devastating conflicts instigated by historical legacies in the Sudan. Indigenous peoples in the Sudan have decried the devastation of their cultures and the dispossession of their lands and territories through the so called 'public property'. The violation of Sudan's indigenous peoples' culture and land led to clashes among country's diverse cultures and religions, displacement of communities, environmental damage, competition over resources, damage to the country's traditional economies and other practices which had sustained them since time immemorial.

Deforestation and legal insecurity regarding land use and tenure are the fundamental threats to forest law compliance in the Sudan. One necessary issue that extends beyond the states of the Sudan relates to the present land laws, the obvious division between the customary and statutory laws. The issue is commonly recognized and calls for harmonization specified by Sudan interim constitution 2005[1197] have not been fulfilled.[1198] Mechanisms of customary law have eroded as communities disintegrate, and a lack of access to justice, impunity for perpetrators, and lack of awareness of rights remain critical problems in parts of Sudan; notably, Darfur in the west. In 1956, Sudan attained independence, and has since, experienced a series of devastating conflicts instigated by historical legacies[1199], clashes among country's diverse cultures and religions, competition over resources and other factors.

[1195] Bryant, Raymond L. Romancing colonial forestry: the discourse of 'forestry as progresses in British Burma. *The Geographical Journal*, 1996, 162(2): 169-178. (Bryant 1996). citing Said, Edward W. *Orientalism*. London: Penguin. 1978. (Said 1978).

[1196] Watts, Michael. "Development 1: Power, knowledge, discursive practice." *Progr. Hum. Geogr,* 1993. (Watts 1993).

[1197] Interim National Constitution of the Republic of the Sudan, 2005. Adopted by the National Assembly on 6 July 2005 and entered into force on 9 July 2005.

[1198] World Bank. Sudan Peace –building for Development Project (SPDP), Analysis of Natural Resources Management, Legal and Policy Framework and Conflict (Draft Final Study Report), Sudan. 2016:2

[1199] As stated by Georg Henrik von Wright, "the actions of men are determined by their historical situation, but the historical situation is itself the result of the actions of men."

4.1.5.6 Issues associated with the implementation of international environmental instruments

International environmental instruments confront real difficulties,[1200] once they come down to the level of national implementation or enactment of international standards into domestic law: establishment of domestic permitting procedures, implementing, monitoring and enforcing national legal frameworks, reporting on regulated activities, punishment of violations, and judicial application.[1201] These challenges are due, among others, to financial, institutional and political limitations. Such encounters make the enforcement of international environmental law trickier and more complicated than in industrialized nations.[1202] Besides, environmental issues are not generally assigned a high priority in light of other social, political, and economic problems[1203]

These issues relate to forest policies and practices that considered the arrangements of global standards regarding forestry. These problems include the transposition of either the general and broadly defined obligations of many environmental conventions, or the detailed and technical provisions of implementing treaties into national legislations. Especially in the latter case, significant incompatibilities may be found between the international level regulation and the national legal apparatus, starting from the concepts used. Thus, it may turn out to be difficult, even impossible to make the national legislation compatible with the international demands. In the former case, the latitude left for the implementing states is often too wide to give much – or any – substantive guidance as to how to implement it.

[1200] Jacobson, Harold and Weiss, Edith Brown. *Engaging Countries: Strengthening Compliance with International Environmental Accords*, Cambridge: Massachusetts Institute of Technology. 1998. (Jacobson et al. 1998).

[1201]Kiss, Alexandre & Shelton, Daniel. *Guide to International Environmental Law*. Leiden. Martinus Nijhoff Publishers. 2007. (Kiss & Shelton 2007); Bodansky, Daniel, Brunnée,Jutta and Hey, Ellen (eds.), *The Oxford Handbook of International Environmental Law*, Oxford: Oxford University Press. 2012: 17 (Bodansky et al. 2012).

[1202]Sands, Philippe, Peel, Jacqueline, Aguilar, Adriana Fabra, MacKenzie, Ruth. *Principles of International Environmental Law*. New York: Cambridge University Press. 2012 (Sands et al. 2012); Birnie, Patricia, Boyle, Alan and Redgwell, Catherine. *International Law and the Environment*, 3rd ed., Oxford; New York: Oxford University Press, 2009. (Boyle et al. 2009).

[1203] Jacobson et al. 1998.

Notwithstanding the issues encountered by nations in sub-Saharan Africa while consenting to international environmental law, Sand[1204] argues that majority of bilateral and multilateral aid projects are currently tasked with the responsibility of establishing feasible enforcement mechanisms in the national regulatory framework.

4.1.6 Potential effect of foreign law on minorities and indigenous peoples around the globe

Minorities and indigenous peoples around the globe proceed to face eviction from their lands and other infringements of their rights caused by not just extractive industry such as metal mining, petroleum and natural gas, and lumbering activities but all private sector development. Governments tend to see new development and extractive projects as opportunities to contribute to national economic development and bring benefits to the state, such as employment, infrastructure investment and increased taxation revenue.

All the same, such tasks may be perceived differently in minorities and indigenous communities. For them, the land that will be developed is an inbuilt element of their spirituality and civilization; the forest, mountains, plains and water resources are not just important for the support of their communities, they also have cultural and spiritual meaning. There are apprehensions about the negative environmental and societal impacts of such development projects may result in social, cultural, economic and environmental implications,e.g. destruction of livelihoods and loss of productive assets and security implications – often far outweigh the beneficial effects, such as employment opportunities or new roads.[1205] The following paragraphs discuss a few recent evidence on the eviction of indigenous peoples from their land via a diversity of projects. These eases exemplify the severity, and breadth and depth of the problem:

Example may be cited of *Oil and gas exploration and extraction in the* Niger Delta of Nigeria*:* Etche, Ijaw, Okrika, Ogoni and other minorities who predominantly inhabit the Niger Delta struggle today with the repercussions of pollution and environmental damage due to prolonged and frequent oil spill in the area. This state of affairs has caused severe health consequences, damaged

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[1204] Sand, Peter H. Carrots without Sticks? New Financial Mechanisms for Global Environmental Agreements. *Max Planck UNYB*, 1999, 3:363-88.

[1205] Corrine, Lennox. Natural resource development and the rights of minorities and indigenous peoples. In: Beth Walker. State of the World's Minorities and Indigenous Peoples 2012. Minority Rights Group International.2012:37. (Corrine 2012).

livelihoods and degraded the environment of the people living nearby. A 2011 report by the United Nations Environment Programme estimated that cleaning up the pollution and sustainable recovery could take 25–30 years[1206]

A second examåle regards *precious minerals and metals extraction* in Papua New Guinea (PNG)*:* The Ipili people of PNG had the misfortune of being evicted from their land to clear room for the Barrick Gold's Porgera gold mine in the Enga Province in the highlands of Papua New Guinea in 2009. The PNG Government and Canada-based Barrick Gold Corporation are blamed for intentionally neglecting the rights of landowners.[1207]

A third example rekates to Agribusiness in Singapore: On 7th December, 2013, accompanying Singapore-based Wilmar Group staff, local Indonesian security forces allegedly stormed several villages, including the Padang Salak hamlet in Bungku village located inside a Sumatran palm oil plantation concession in the province of Jambi, on the island of Sumatra. These non-villagers (i.e. local Indonesian security forces) and their accomplices were accused of destroying dozens of homes, looting indigenous peoples' (residents') property and violently evicted Suku Anak Dalam communities which had reoccupied their ancestral land in the palm oil plantation.[1208], [1209] Another example cam be cited of a *Dam project*: in Turkey. The Ilısu Dam,[1210] an embankment dam, under construction on the Tigris River in southeastern Turkey, if built, will displace as many as 70,000 people (Kurds). The construction of this dam will also cause environmental pollution, destroy biodiversity and affect the flow of Tigris water supply to the detriment of the

[1206] Corrine 2012:37

[1207] ibid.: 37.

[1208] Corinne 2012: 37.

[1209] Parker, Diana. Indonesian palm oil company demolishes homes and evicts villagers in week-long raid. Mongabay-Indonesia correspondent December 14, 2013. Available at:
http://news.mongabay.com/2013/1214-dparker-asiatic-persada-palm-oil-conflict.html#o2By2GuigMmRK2x7.99. [Accessed: 2nd January, 2014]. (Parker 2013). *See also:* Parker, Diana.
http://news.mongabay.com/2013/1214-dparker-asiatic-persada-palm-oil-conflict.html 2013 [Accessed: 24th October, 2014].

[1210] The purpose of Ilısu Dam is hydroelectric power generation, flood control and water storage.
The dam project began in 2006 and is expected to be completed by 2015.

downstream countries.[1211], [1212] In terms of *logging*, part of the Borneo rainforest in Sarawak, Borneo, is occupied by the Penan indigenous community for whom the forest plays a key part in their lives. They go on to call for the realization of their native customary rights to land in the forests that have been put down by tree extraction and road construction. Malaysia-based companies, including sampling, Interhill and Shin Yang logging contractors are contributors to this destruction and are often accused, by tribal people, of negligence of protecting the natural resources including wildlife, water, forest resources and territory of the Borneo rain forest. A small number of Penan community members who fight encroachment by loggers and state-sponsored development projects that are contributing to break up of their peaceful existence alleged that Penan women have been assaulted by workers from the lumbering companies. The prevailing rate of deforestation is causing rapid and potentially severe impacts on the ecology of the region and it also decimates the local indigenous culture.[1213], [1214]; [1215]

A measure of development relates to the issue of Nature *reserves:* The destruction of traditional lands, resources and livelihoods can also lead to cultural erosion, putting the very existence of groups at threat. Spiritual lives and traditional practices of medicine, food preparation and other ways of life tied to the natural environment can easily be destroyed by natural resource development. More recent evidence of the threat of eviction of indigenous peoples from their land and natural resources which are the basis of their

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[1211] Corinne 2012: 37.

[1212] Conker, Ahmet. An enhanced notion of power for inter-state and transnational hydropolitics: An analysis of Turkish-Syrian water relations and the Ilısu Dam conflict between the opponents and proponents of the Dam. Doctoral Dissertation. University of East Anglia, UK. 2014. (Conker 2014).

[1213] Ikrashi, Anna. An impossible balancing act? Forests benefit from isolation, but at cost to local communities. Available at: http://news.mongabay.com/2014/1007-ikarashi-forest-isolation-local-communities.html#sthash.JOvfWQBg.dpuf 2014. *See also,* http://news.mongabay.com/2014/1007-ikarashi-forest-isolation-local-communities.html#sthash.JOvfWQBg.dpbs 2014 [Accessed: 24th October, 2014]. (Ikrashi 2014).

[1214] Corinne Lewis 2012: 37.

[1215] TED Case Studies. The Penan of the Borneo Rainforest. 2014. Available at: http://www1.american.edu/TED/penan.htm [Accessed: October 24, 2014]. (TED 2014).

livelihoods, cultures and identities as a people [1216] can be confirmed by the words of a member of the Ogiek[1217] council of elders in Kenya:

> "Mau forest is our home: we are not encroachers, we are forest dwellers; we don't cut trees, we nurture them for our livelihood; we hang our beehives, it's our sure "hospital" where we get herbs, it's a sacred mother earth to our traditions."[1218]

This statement has been made in allusion to the threat of eviction and its consequences. The statement implies that the Mau Forest[1219] is conceived as a habitat where its inhabitants derive forest resources such as honey, wild fruits and medicine.[1220] The Ogiek indigenous minority ethnic group is one of several groups of hunter-gatherers in the Mau Forest in southern Kenya.[1221] They comprise around 20,000 members and about 15,000 of whom inhabit the greater Mau Forest Complex, a land area of approximately 400,000 hectares, consisting of about seven administrative districts.[1222] Ogiek have been subject to repeated

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[1216] Walker 2012:7.

[1217] The Ogiek tribe of Kenya live in the Rift Valley's Mau Forest. They are described as hunters and gatherers. They complained of being excluded from forest restoration initiatives, which are focused on planting exotic trees rather than the indigenous species they rely on to survive (Wanzala, Justus Bahati. Kenya grapples with governance of climate change projects. Thomson Reuters Foundation. Available at: http://www.trust.org/item/20130930110828-38kq6/?source=spotlight 2013. [Accessed: October 22, 2014]. (Wanzala 2013).

[1218]Corinne 2012: 14.

[1219] The Mau Forest Complex is found in Western Kenya. It is the largest indigenous mountain forest in East Africa and an important water catchment. It has experienced high rates of deforestation and degradation since the late 1980s, due to conversion of forest land into agriculture and human settlement. It has been estimated that about 100,000 hectares - a quarter of the forest's total area - has been lost since 2000. (Wanzala 2013).

[1220] Wanzala 2013.

[1221] The Ogiek indigenous minority ethnic forest-dwelling normadic hunter gatherer group also inahabit and claim the Mount Elgon Forest in Western Kenya, their ancestral land.which they have been in continuous possession and occupation of the same in the concept of owner for thousands of years.

[1222] African Court on Human and Peoples' Rights 2013:3.
(In the matter of African Commission on Human and Peoples' Rights v. The Republic of Kenya. Application No. 0 Available at:
http://www.african-court.org/en/images/documents/Orders_Files/ORDER_of_Provisional_Measures_African_Union_v_Kenya.pdf [Accessed: 24th October, 2014]).

mass evictions from Kenya's Mau Forest since colonial times. Most recently, in 2009, the Kenyan Parliament authorized the eviction of all inhabitants from the forest, ostensibly for conservation purposes, although this was done without proper consultation. The 40,000 hectare forest is seen as a key area for the development of tourism, as well as power generation projects and tea plantations.[1223] The African Court on Human and Peoples' Rights, on 15th March, 2013, granted an "order of provisional measures to confirm that the Ogiek cannot be ousted while the case is before the court." [1224]

Obvious as it may sound, the customary laws focus on the group where much attention is paid to the survival of the collectivity. However, the western laws are organized for and around the interests of an individual. The consequences of this influence have led to a distortion of economic benefits and of social values as seen from the viewpoint of the majority of the citizens of this country.[1225] Against this backdrop, there has been a significant difference in social, economic and institutional context between the colonial powers and Sudan, creating basically different conditions for effectuating the imported legal order in the latter.[1226]

It is also a fact that the colonial powers organize protection with little consideration and efficiency for the environment. In recent times, the notion has changed to prioritize the environment, as a property, as far as protection is concerned, less in an immediate perspective than for present and future generations. It is generally acknowledged that when the law is adapted to local

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06/2012. Order of Provisional Measures. Arusha, Tanzania, 15th March, 2013).

[1223] Corrine 2012.

[1224] In the matter of African Commission on Human and Peoples' Rights v. The Republic of Kenya. Application No. 006/2012. Order of Provisional Measures. Arusha, Tanzania, 15th March, 2013.
http://www.african-court.org/en/images/documents/Orders_Files/ORDER_of_Provisional_Measures_African_Union_v_Kenya.pdf [Accessed: 24th October, 2014]).

[1225] Kanyeihamba, George W. The impact of the received law on planning and development in Anglophonic Africa. *International Journal of Urban & Regional Research*, 1980. 4 (2):239.

[1226] Berkowitz, Daniel, Pistor, Katharina and Jean-Francois, Richard. "Economic development, legality and the transplant effect." *European Economic Review,* 2003a. 47(1):165-95 (Berkowitz et al. 2003a); *See also*, Berkowitz, Daniel, Pistor, Katharina and Jean-Francois, Richard.. "The Transplant Effect." *The American Journal of Comparative Law*, 2003b. 51: 163- 191. (Berkowitz et al. 2003b).

needs, people will abide by and want to effectively assign adequate resources for enforcing and developing laws and regulations or formal legal order.

4.2 Policies and institutional aspects that may have or have had a noticeable impact on environmental and natural resources management

(Research question 3: Looking into the future, what may be expected, and how could policies and legislations regarding resources be made better than today?)

4.2.1 Introduction

Research problem and research question definition formed the initial steps of the research process. After defining the problem and formulating research question, data was then gathered from primary sources of law. In addition, ssecondary data was obtained from series of compiled literature/documents etc. The collected data enabled the investigator to synthesize and summarize the existing body of scholarship that relates to research question number 3 (see Table 14).

Following data analysis, categories and theme (Table 14) were derived from the whole process and in relation to the research question. The theme cut across data sets that were important to the description of a phenomenon and were linked to research question number 3 as indicated in Table 14. During the process of data analysis, the categories generated the theme: "Policies and institutional aspects that may have or have had a noticeable impact on environmental and natural resources management." This theme formed the basis of discussion of subsequent subheading.

This chapter focuses on strategies that lie ahead by attempting to find answers to the following question posed: "*Looking into the future, what could it become and/or how can it be made better?*" The chapter also discusses the environmental efforts embarked upon by the Government of the Sudan and this includes the Comprehensive National Strategy with sole aims of achieving sustainable development.

Table 14. Phases of Qualitative content analysis (QCA) of research question number 3, indicating research questions, categories and theme.

Research Question No. 3	Category	Theme	QCA in relation to the fulfillment of intended aims of the study
Looking into the future, what may be expected, and how could forest policies and legislations regarding resources be made better than today?	Land use and development initiatives: Sudan´s lease tenure system and other related land issues; Identification of legal and policy tools to support ecosystem management strategies and appropriate arrangements for the equitable sharing of benefits arising from ecosystem goods and services.	**Policies and institutional aspects that may have or have had a noticeable impact on environmental and natural resources management**	QCA fulfilled the role of completing the following: Identification of research problems and development of research question to serve as the focus of the research; *Collection of specific primary sources of law*: Systematic identification based on multiple electronic databases employed for literature search (see Table 1); *Collection of secondary data* from other published and unpublished grey literature in relation to the Sudan, reference books, legal textbooks, legal journals and legal encyclopaedias (see Table 1);

	Data analysis by coding and categorization, revealing the hidden theme; Determination of theme cutting across data sets: The whole exercise eventually generated clear categories and themes; Documenting findings and drawing of conclusions.

4.2.2 Land use and development initiatives: Sudan´s lease tenure system and other related land issues

In line with the content of national law, it has been legal to lease out the local customary property. The government, through a leasehold tenure system, can ensure that land is made available for projects targeting development and other agricultural schemes. The key instruments focus on the "1968 Mechanised Farming Corporation Act and the 1970 Unregistered Land Act (ULA)."[1227] The Mechanised Farming Corporation Act, 1968 spelled out rules and procedures for leases and as Wily[1228] points out, mechanised Farming Corporation Act, 1968 was established to encourage and regulate investment in large-scale mechanized farming produced on private schemes in blocks of 500-1,500 acres; 60% of the allotted area to go to investors, 40% to local people, under a lease for a period of 15 years or less. An individual farmer to be entitled one farm [none of this agreement was honoured after the first two years]. In 1992, this law was repealed by the government, in favour of State Corporations.[1229]

The Unregistered Land Act, 1970 established a leasehold tenure system and recognised it as a law[1230] that all land classified as unregistered, occupied, or unoccupied, became state property and was deemed to be registered in the name of the state.[1231, 1232] Possession of such untitled parcels of land, whether these lands fell under individual ownership, family or community ownership, was not representative of real property and thus fell by default to Government tenure.[1233]

[1227] Harragin, Simon. Nuba Mountains Land and Natural Resources Study. United States Agency for International Development (USAID). 2003: 16.

[1228] Wily, Liz A. Making peace impossible? Failure to honour the land obligations of the comprehensive peace agreement in central Sudan: A Resource Paper. 2010: 35. Available at:
http://www.cmi.no/sudan/doc/?id=1305 [Accessesd: 10th December, 2015] (Wily 2010).

[1229] ibid.

[1230] Wily 2010: 6.

[1231] Unregistered Land Act (ULA, 4(1).

[1232] Manger 1994.

[1233] Wily 2010: 6.

The principal aim of 1970 legislation was to establish a solid legal base for the purpose of state leaseholds as the tenure of farmers implementing large agricultural development projects, and as steps in the process of land acquisition for such projects.[1234] The Unregistered Land Act (ULA) of 1970 was repealed by the Civil Transactions Act (CTA), 1984 but retained its main principle of reiterating government ownership of unregistered land. [1235]

The unregistered Land Act introduced in 1970 was repealed by the Civil Transactions Act (CTA) of 1984. The CTA was part of former President Jaafer Muhammad Nimeiri's newly imposed September Laws. The CTA, 1984 played an important role of repealing all earlier civil legislation, as well as land laws which further empowered the state with privileges and favoured a select few, close to government in land acquisition at the detriment of rural people. As mentioned earlier, the CTA 1984 – maintains state ownership of the land whereby the government is entrusted with the responsibility of caring for lands as stewards under God; as quoted in de Waal and Ajawin:

> "Land is God's and the State is made successor and responsible for it and owns it. All lands are deemed to be registered under the name of the State and that the provisions of land registration and settlement act were considered".[1236]

Legislation introduced in the 1920s and 1980s (particularly Rights arising under the Land Settlement and Registration Act 1925, which remain further in full force and effect, and the Civil Transactions Act (CTA) of 1984, replacing the Unregistered Lands Act (ULA) of 1970),[1237] primarily regulate land use and development in the Sudan. These procedures are intended to ensure adherence to a predetermined set of policies or standard in case of all land use and

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[1234] Glover 2011: 2.

[1235] Wily 2010:6.

[1236] Quoted in De Waal, Alex and Ajawin, Yoanes. (Eds.). When Peace Comes: Civil Society and Development in Sudan. The Red Sea Press, Inc., USA, 2002: 134. (De Waal & Ajawin 2002).

[1237] Overseas Development Institute (ODI), The Land Question: Sudan's Peace Nemesis, Working paper, ODI, December 2007: 3.

development initiatives being undertaken[1238] Other statutory instruments issued, made or established in the execution of the power and regulation of land use in Sudan consist of the Limitation and Prescription Ordinance of 1928 and the provisions of the Ordinance relating to land acquisition of 1930 (i.e. Land Acquisition Ordinance of 1930).[1239]

Prescription describes the process of acquiring a right to property by continuous possession for a prescribed duration. Similar provision could also be

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[1238] Legal and Institutional Policy (LIPF) Framework) for Sustainable Management of Forest Resources in Southern Sudan: A Policy Note, Sudan, February 2010. Available at: https://openknowledge.worldbank.org/bitstream/handle/10986/2978/611190ESW0P1071SSForest0Policy0Note.txt?sequence=2 Accessed: 4th February, 2014 (LIPF 2010).

[1239] The Land Acquisition Act, 1930 [IN FORCE]: Amended in 1955, 1961, 1971, 1972, 1973 and 1974 (Wily 2010:35):

- "Repeals 1903 law to make provision for compulsory acquisition of land and alters procedure for material benefit to the public generally or to any person who resides or owns, or holds said land in the neighbourhood"

-(Wily 2010:35. See also, Land Acquisition Act, 1930; 2 Laws of the Sudan 239 (5th ed. 1976); The Acquisition Act, 1970; Deng, James, N. *Peaceful Co-existence vs Socioeconomic Development in South Sudan: Examining the interdisciplinary Aspects of Land-use Conflicts.* Germany: LAP Lambert Academic Publishing, 2014. (Deng 2014).

- "Seeks to clarify some of the difficulties inherent in the concept of subordination of customary rights as 'land which is owned by the Government subject to rights of watering, grazing, cultivating, wood cutting and the like, enjoyed by the members of any tribe or section of a tribe, or of any town, village or part thereof' (s.3) (i.e. maintained customary rights as permissive rights of occupancy and use only)"

-(Wily 2010:35. See also, Land Acquisition Act, 1930; 2 Laws of the Sudan 239 (5th ed. 1976); The Acquisition Act, 1970; Deng, James, N. *Peaceful Co-existence vs Socioeconomic Development in South Sudan: Examining the interdisciplinary Aspects of Land-use Conflicts.* Germany: LAP Lambert Academic Publishing, 2014. (Deng 2014)).

found in the Deeds Registration Ordinance, 1908.[1240] It was also stressed in the Land Settlement and Registration Ordinance, 1925,[1241] that registration of title did not automatically affect the right of any other person interested in the registered property to secure title of it by prescription. The Prescription and Limitation Ordinance, 1928, under s. 2 provided that: Land security may be acquired by any person who had occupied any piece of land for a period of ten or more years without an interruption became entitled to that piece of land by prescription except in the case the land was against the Government, in which circumstance the period of occupation should have been of minimum 20 years instead of ten.[1242]

Even though the ULA was formally repealed in 1984, consecutive legislation reaffirmed government ownership of unregistered land.[1243] With this being the case, the CTA 1984 incorporated ULA 1970 content (as mainly section 559) with additions. The following list, adapted from the final paragraph of a research paper on exploring "provisions associated with land in the Comprehensive Peace Agreement of Sudan (CPA 2005)[1244]" spells out land related content of the Civil Transactions Act, 1984[1245]:

[1240]Sudan Archive. The Prescription and Limitation Ordinance, 1928. SAD.627/12/28-30. Official Papers (a) Ordinances 1899-1932, SAD 627/12/1-44. Copies of Ordinances, proclamations, etc. on land law in the Sudan. Durham: Durham University Library. Available at:

http://reed.dur.ac.uk/xtf/view?docId=ead/sad/simpsosr.xml [Accessed: 10th December, 2014] (Sudan Archive 2014).

[1241] 1 Laws of the Sudan 406 (5th ed. 1976).

[1242] Sudan Archive 2014. *See also*: El Mahdi, Saeed M. 'Some general principles of Acquision of Ownership of and Rights of Land by Customary prescription in the Sudan', *Journal of African Law* 1976, 20 (2); 79–99. *See also:* Kibreab, Gaim. "Property Rights, Development Policy and Depletion of Resources: The Case of the Central Rainlands of Sudan, 1940s – 1980s." *Environment and History.* 2001, 7(1): 57–108.

[1243] The 1984 Civil Transactions Act, which repealed the ULA, reaffirmed government ownership of unregistered land. (Manger 1994 citing Bruce 1989).

[1244] Willy 2010:35.

[1245] ibid.

a) "The sole ownership of land by the federal government diminished from absolute proprietorship to the trusteeship of the land on behalf of God and declared to be public property;
b) Land registered on or after 6th April 1970 as being under freehold ownership was deemed the "ownership of the usufruct";[1246]
c) Customary ownership of land classified as no more than 'lawful or bonafide occupants and users';
d) .A principle governing the appropriate use of the law in land relations, improving status of customary land rights: "A custom shall be given effect whether it is general or limited;" [1247]
e) Opening up of land grabbing opportunities for those with the means to develop the land via construction of wells, building, crop cultivation and irrigation to acquire recognition as holders of private right;
f) All fallow land considered as pasture, increasing damage and conflicts between land cultivators and herders;
g) Implied a possibility of compensation arising from the dispute determination;
h) Enabled strategic planning for family unit ownership, but may provide limited coverage for up to fifteen years and, apartments and commercial premises were main targets;"
i) Authorised ownership of underground 'treasures and minerals', buried in the ground of a land owner, vests with owner of land: Such land owner is expected to pay one fifth of income (on value of wealth acquired), in form of Tax (or what is known as "*Zakat"* in Islam), to the State;
j) Seek to empower the customary right of use and occupancy titles subject to continuous cultivation and use of the land in the absence of the federal authority to make use of such land;[1248]
k) Declared registered land with usufruct rights to be on a par with that of registered ownership;
l) All lands which have not been registered should be regarded as registered in the name of the government and as if the Land Settlement and Registration Ordinance 1925, have been duly adhered to;
m) State *laws* often *extend* these *protections;*
n) Prompt payment of compensation needed for expropriation to resulting 'lawful customary users.' 'A lawful user as clearly explained under the provisions of this Act, even if unregistered, is afforded adequate protection under law in respect of the extent of actual land-use. An expropriating authority shall not expropriate the land save for public interest. In such situation, this Act aimed at compensating any person whose land is expropriated';

[1246] i.e., the plan of 1970 Act to place all land in government ownership, other than that registered as in private ownership prior to 1970, is confirmed (Pearce, David, Barbier, Edward, Markandya, Anil. Sustainable Development: Economics and Environment in the Third World. Washington DC: Earthscan. 2010:141).

[1247]Quoted in: Cotran, Eugene Mallat and Mallat, Chibli. (Eds).*Yearbook of Islamic and Middle East Law*. London: Kluwer Law International, Vol. 1. 1995:: 239.
The Civil Transactions Act 1984, Section 5, which spells out the primary rules to apply this Act.

[1248] The customary rights gained legal recognition, meaning increased land security for the land-holders.

o) Required to take into consideration of "(i) environment such as pastures and settlements; health of animals (ii) preventing injuries on smallholdings; (iii) settlement encouragement;"
p) The practice of granting huge tracts of land should only be done in accordance with the best ways to manage production and proper disposal of agricultural drainage water; "
q) Grants for the purpose of agricultural production to take precedence over other purposes;
r) Licenses could be issued for livestock grazing. In Addition, licenses could be issued for fuelwood cutting on wasteland; and grazing-use permits could be issued by federal and state agencies authorized to requlate grazing areas and graze at the designated grazing season."[1249]

The CTA 1984 also formally recognizes customary laws pertaining to land resources, and provide mechanisms to resolve land disputes in many parts of the country, especially in rural areas. The 1984 law minimised Government's power to deprive people of the possession or occupancy of unregistered lands.[1250] Moreover, the CTA 1984 prohibits any litigation concerning issues regarding title to land. Under CTA the courts have no jurisdiction to entertain and determine cases involving title to land, or the right to possession of land owned or administered by the Government.[1251], [1252] Additionally, the impact of the CTA Amendment exclusionary rule enables *courts to be* excluded from hearing and determining any claim or lawsuits –

> "on land ownership against the Government and any registered owner of investment land allocated to him".[1253]

However, it poses great challenges in practical application among communities because of variation among communities. It has a dynamic, but largely informal, oral and unrecorded heritage.[1254] The Forests Act, 1989, S.

[1249] Willy 2010:35.
[1250] De Wit, Paul V. Legality and Legitimacy: A Study on Access to Land, Pasture and Water. Sudan. FAO, Rome. 2001. (De Wit 2001).
[1251] El Mahdi 1976.
[1252] Sudan Archive 2014.
[1253] Quoted in de Waal and Ajawin 2002: 134-5. See also: De Wit 2001; Tanner, Vic. Land Legislation in Sudan – An Overview. Development Alternatives Inc. (DAI), USA. 2004: 3. (Tanner 2004); Sudan Archive 2014.
[1254] Willy 2010.

11(3) stipulates that: *The Forests National Corporation may by contract, grant privileges to any government or non-government to manage all or part of the forest reserves.*[1255] This pattern of land tenure may be used for convenience for the corporation to contract with others to conduct the proper management of forest land. It can either be a lease or a concession. The lease should, guarantee the long-term conservation of the areas concerned. Kanoan,[1256] cited an example that relates to a contract of tenancy for Khor Kilaikees Forest Reserve with duration of 99 years: He argued that, the terms of the lease are framed so as to impose strict conditions on the lessee so as to ensure that farming practices are compatible with long-term conservation requirements. The most important enforceable covenant and condition relates to the establishment forest plantations.

A variety of strictly legal provisions the concession agreements or forest utilization contract[1257]: Forest management provisions[1258] entail forest utilization being carried out in accordance with the underlying agreement or applicable forest management regulations, conduct a definite and potential management and forest utilization planning to be granted, and spell out management plans fixing annually a maximum cutting volume of exploitation

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[1255] The Forests Act 1989, S.11(3).

[1256] Kanoan, Gorashi M. Some Institutional Aspects of the Management of the Forest Resources in Sudan. Institute of Environmental Studies, Khartoum, 1995.

[1257] "Forest utilization contracts - frequently also referred to as forest concessions - comprise all forms of legal arrangements such as permits, licences, leases, agreements and contracts which convey to an individual or a company the right to explore the forest potential (exploration contracts), to cut and remove commercial timber (timber harvesting contracts), and/or to manage forest land for a continuous raw material supply (forest management contracts). Utilization contracts may also include the right to construct and maintain forest roads and other traffic installations, to build logging camps and to establish wood-processing industries." (Schmithüsen, Franz. Forest utilization contracts on public land in the tropics. An international review of forestry and forest products. *Unasylva,* 1976: 28 (112-113): 1 (Schmithüsen 1976).

[1258] Schmithüsen 1976:1.

and a formal requirement to reforest the area for which they have concession to ensure a continuous supply of wood from the granted forests.

The multiple uses of forests were recognized in the preamble of the forest principles.[1259] This concept is the cornerstone of sustainable forest management. It ensures the continuity of the flow of multiple benefits mainly of production, protection and recreation for the present and the future generations. This can be based only on the analysis of the capacity of the forests to perform various functions: cultivation, livestock, timber production, agroforestry, watershed protection, species conservation and recreation.[1260] As noted by FAO,[1261] the multiple uses of forests mark a significant change from a sustained timber flow to multiple benefit flows embracing the social, economic and ecological roles of forests.

4.2.3 Conclusion

This chapter discussed the issue of land use and the management of forests in the Sudan. It could be concluded that the path towards more sustainable forest management requires, among others setting up empowering and appropriate policy and legal environment for reforms in land administration as a prerequisite for improving tenure security and ownership/property rights, land-use planning, and forest resources management. In the meantime, one must make progress toward equity and full citizen participation to facilitate decision-making and real administration of the resources. Putting in place and enforcing the legal and policy frameworks are fundamental empowering conditions for sustainable forest management. This framework will need to be developed on basis of transparency and accountability. It will also need to take into consideration

[1259] Statement of Forests Principles of the United Nations Conference on Environment and Development (UNCED) in Rio. U.N. Doc. A/Conf. 151/26, (Vol. III) (b)(c) (1992).
[1260] Hollo Erkki J. Biodiversity and Law. Environmental Law Lecture Notes, Faculty of Law, University of Helsinki, 2005:4. (Erkki 2005).
[1261]FAO (Food and Agricultural Organization of the United Nations). Fuelwood supplies in the developing countries. De Montalembert, M. R. and Clement, J. (eds.) Food and Agricultural Organization of the United Nations, Rome, Italy. 1983. (FAO 1983).

community needs and genuine involvement of communities in forest and woodland resource management

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study employed qualitative content analysis and partly, a legal analysis of legislation (legal dogmatics) and policies in the Sudan; with special reference to the forest sector. It examined content of sources of law i.e. general principles of law and rules of international environmental law, national laws, judicial decisions and juristic works or in other words, "Writing of Eminent Jurists", other new sources (e.g. resolutions produced by states or general assembly resolutions, declarations, doctrine, soft law recommendations and standards given by world organizations) (in the way they were used for interpreting the law in the Sudan) as well as secondary sources of data derived from other published and unpublished grey literature in the Sudan. It gave a concrete analysis of legal material and examples of regulation that have been enforced at different times. It also explained how the command and control system is expressed in these forests. Consequences of the regulation of resource degradation or deforestation are "factual consequences" and therefore formed the socio-legal aspects of the study. From a legal perspective, the greatest issues and challenges lie not just in the effectiveness of the legal framework, but in its enforcement or implementation.

The current study attempts to address the main issues related to legal instruments or mechanisms and their important roles in promoting sustainable management of resouces, in particular forests. The approach to sustainable forest management is focused on the forest principles[1262] adopted by the United Nations Conference on Environment and Development to facilitate and support the effective implementation of the: "*Non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests.*" [1263]

[1262] Report of the UN Conference on Environment and Development, Rio de Janeiro, 3 -14 June 1992. UN Doc. A/CONF. 151/26 (1992), p. 480 (UNCED 1992:480).

[1263] UNCED 1992:480. See also: ASIL. The American Society of International Law. 31 International Legal Materials, 1992. 881pp. (ASIL 1992); Boyle, Alan and Freestone, David. *International Law and Sustainable Development: Past achievements and Future Challenges*. Oxford University Press 1999 (Boyle & Freestone 1999).

This dissertation dealt with the issue of the management of natural resources in the Sudan, and in particular, analysis of the legal mechanisms or instruments for enforcement and implementation of environmental law for the management, conservation and protection of forest resources, and in a broader context, of sustainable development in the country. The study examined the enforcement from the perspective of its relationship with environmental laws. It examined a wide range of laws and policies that have an indirect impact on forest conservation and development. The enforcement mechanism and implementation tools that are needed to address enforcement of environmental laws for sustainable development and the protection of forests highlighted include public awareness and participation, conservation orders, licensing system, measures for leases and concession agreements, incentives and disincentives, and Environmental Impact Assessment.

Although the Sudan has ratified a multitude of international environmental agreements (e.g. treaties and conventions), and has statutes, regulations, and other provisions to protect the environment in its domestic laws, the issue of implementing the legislation adopted, revitalizing and strengthening of legal and policy mechanisms, and structure still remains arguably the greatest challenge to the Sudan's social economic development. The current implementation and enforcement of treaty instruments (or compliance with international commitments) and mechanisms are quite weak in international and national implementation processes and institutions. This study demonstrates the failure of enforcement mechanisms to trigger improvements in environmental and natural resources management in the Sudan. Tables 4, 10, 11 and 12 exemplified how the government of the Sudan has failed to implement and/or develop legislation and policies to protect indigenous peoples and in particular laws about forest resources, and land. Issues related to environmental changes in the Sudan are due to anthropogenic and climatic factors or cyclic events. These factors cause devastatingly adverse effects on the natural environment in the Sudan and in particular, they adversely affect humans and almost all forms of endemic life.

The government of the Sudan has failed to implement and/or develop legislation and policies to protect indigenous peoples and in particular laws about forest resources, and land. Environmental problems consist of land degradation, desertification, biodiversity loss, accumulated environmental damage, coupled with socio-economic problems, such as poverty, pollution, natural resource depletion, extensive destruction of human capital and infrastructure, growing population pressure, health and widespread violations of human rights remain the landmark due to weak institutions; coupled with inappropriate international, regional and national implementation and

enforcement of environmental legal mechanisms and treaty instruments. It is of paramount importance for Sudan to observe its international obligation to protect fauna and flora, and should engage more in cooperative problem solving by signing, ratifying or acceding to international and regional treaties to the conservation of natural resources and the protection of the environment.

The Sudan is faced with the issue of lack of effective strategic land use policy: Findings indicate that policy frameworks regarding land use lacks support and reinforcement of a clear, uniform legal framework. It is expected that legal frameworks would comprise of revision of sectoral laws, enactment of legislation to manage land use, rangeland and pastures, genetic resources and biodiversity. It could be stated that the country is engulfed with weak institutional capacities at the state level: In line with the provisions of the country's constitution, land, forest and other natural resources are divided in accordance with federal state boundaries and structures, averting the holistic approach required for biodiversity conservation. This contributed immensely to diverse policies, incoherent legislation and by-laws, and institutional weaknesses. It is of paramount importance to amend and improve the legislation, e.g. the Wildlife and Fisheries Acts and to reform wildlife management with a new multi-disciplinary outlook and traditions.

The study also attempts to explore the effects of foreign law (legal transplants) during the colonial era (from the 1890s to 1956 on natural resources development; modern conservation policies, legislation and practices in the Sudan. More specifically, the study explores the influence of colonial pathways and new trends on how diverse of actors respond to those changes and mobilize in order to govern their own resources better. The study described the major elements in the development of forest law in the Sudan: from before the colonization, during the colonization by the British from late 19th century to independence in 1956, and elements of the policies and legislation related to forestry after independence.

In this study, forest policy and legislation in the Sudan during the pre-colonial era (prior to 1890), colonial era (1890 – 1953) and post-colonial era (1953 – present) were presented. It was noted that Sudan's pre-colonial customary ownership of rural land resources or traditional regulatory mechanisms and practices focus on the group or communities where much attention is paid to the survival of the collectivity and protection of resources. These mechanisms and practices comprise practices put in place by local communities and that constitute customary laws and traditions, which can be regarded as unwritten constitutions and laws passed on from one generation to the other. Access to and use of resources was regulated by collective arrangements, according to collective communal rules based on norms.

The ambition of the study was to show how the legal development during colonial times - with forests and forest activities becoming colonial property and under colonial authority, and with the exercise of police power - in many ways contradicted and broke up the traditional customary law. The study revealed that the pre-colonial customary ownership of rural forest/land resources with collective arrangements was significantly weakened by the British Colonial Administration, which declared that any landscape under customary ownership that was not under immediate use was vacant land. Colonialism was based on the need to ensure control and access to primary resources for industrial development in Europe. Local people were barred from the forest and lands in preference to national parks and reserving land for colonial settlers. Consequently, several communities experienced relocation from their homelands and were denied access to protected areas, game parks and their resources through laws that targeted absolute preservation and protectionism.

During the colonial era, the British colonial administration in the Sudan, secured legislative control over natural resources and forests became colonial property and under colonial authority, and with the exercise of police power had major impacts on the situation of forest-dependent people and communities. Before, the forest was regarded as a common resource and its management was mainly in the hands of each local community, tribe or kingdom, without formal property rights in the Western sense being attached. Although the formal land law has experienced substantial changes under successive governments in the Sudan, the legislation is fundamentally founded on the age-old legacies, restrictions and rigidities of colonial land laws; which keep it backward. After the independence of the Sudan in 1956, the colonial system was to some extent continued, but some reforms were made providing for greater participation and responsibility of the local community.

This study holds the view that forest conservation was seen by colonial foresters to be a process of intensive land management that was predicated on the demarcation of the commercially valuable forest lands as state reserved forests. The colonial rule laid emphasis on state control and private ownership as the most resourceful way of developing resource extraction and utilization. There is no doubt that this process of alienating local resource users undermined the mechanisms and practices for community-based forest management strategies that existed at community level through the ages. Whereas the state has the formal responsibility to protect the environment, in practice, state policies and practices since colonial times that stimulate the expansion of commercial logging and massive land alienation have often been a major factor contributing to environmental changes in the Sudan.

The current study underscored the discourse of forestry as public property as much for subjects it marginalized as for those that it privileged. Subjects marginalized in this manner included local forest use (notably the role of local people), indigenous forest management, and the role of conflict in colonial forestry. It has been demonstrated that customary land rights are not formally recognised, and that statutory legislation has traditionally been utilized in bypassing traditional customs by the state or for private interests in rural areas. The failure of the state to define rights clearly and unclear boundaries result in increased tensions. Conflicts generally ensue as a result of contrasts between types of property rights between the state and local people groups.

The discussion in this study also pointed out that in their efforts to civilize the colonized, European concepts of property rights were imported into the Sudan to foster development along pathways adopted by most European countries during the industrial revolution. In times of British rule, the emergence of colonially derived legislative systems has created conflict between traditional and western modes of resource management and distortion of economic benefits and of social values as seen from the viewpoint of most of the citizens of this country. There has been a significant difference in social, economic and institutional context between the colonial powers and Sudan, creating different conditions for effectuating the imported legal order in the latter.

The law transplanted by a colonial regime has not been compatible with the pre-existing order in the Sudan. Instead, it has led to problems characterized by clusters of land use disputes, deficiency in enforcement, multiplicity of arbitration authorities and confusion in a sharing of roles and responsibilities in the area of natural resources management and legislation. Conflicts arise because of differences in the perception and definition of land ownership. Retracing legal developments in Sudan has shown how local people were dispossessed from ancestral lands and the suffering they endured. The foregoing analysis shows that when foreign law is imposed and legal evolution is external rather than internal, legal institutions tend to be much weaker. Forest degradation in the Sudan, while erroneously credited essentially to "common property systems", in reality originates in the disbanding of community-based local institutional arrangements whose primary purpose was to promote resource use patterns that were sustainable. Based on the outcome of the study, legal transplants may work depending on the level of adaptation and familiarity of the population with the basic principles of these laws.

The study also demonstrates that legal reform viewed simply as technical assistance programmes that can be implemented by having Western experts design good laws, are unlikely to produce the desired outcome, i.e. an effective legal order and economic growth and development. As far as law does not comply with

people's needs, they do not experience it as binding. This study also demonstrates that the legal transplantation resulted in a variety of forestry strategies. The 'conventional forestry' has not disappeared; but has been supplemented by other forestry-strategies.[1264] The evidence from this study suggests that efforts must be geared towards development of an internal process of law and generating a self-sustaining demand for legal innovation and change.

The discussion in this study pointed out that the Forests Act 1989 since its promulgation, has been labelled the single most important piece of legislation that has been passed into law by the local legislature to shape the management, conservation, and protection of forests. The prime objective of the legislative developments of the mid-eighties statements was to recognize modern forms of forest ownership, namely private, community and institutional forest reserves to be under the direct management of owners, committees and institutions, besides that of national and regional forest reserves. The important concepts that feature the legislative developments of the mid-eighties include the major shift that is represented in the recognition of the role that local people can play in managing natural forests.

The current land tenure system in the Sudan is based on amalgamation of the regulation of the three major governance systems, viz: - the pre-colonial era [(prior to the 1890s) - basically dominated by the rule of traditional leaders responsible for allocating resources, especially land forests]; the colonial era [(1890's – 1953) characterized by foreign law) and the post-colonial era (1953 – present]. With reference to the issue of land use and the management of forests in the Sudan, it may be concluded that the Government of the Sudan has failed to adopt appropriate land reform measures implemented from time to time. The Government authorities encounter institutional barriers and a lack of political commitment, a lack of clarity of various legal documents, and a lack of accountability to adopt the desired institutional changes in forestry and are more inclined towards preserving the old system mostly in their own interest. It could be concluded that the path to more sustainable forest management requires setting up empowering and appropriate policy and legal environment for reforms in land administration as a prerequisite for improving tenure security and ownership/property rights, land-use planning, and forest resources management. In the meantime, one must make progress towards equity and full citizen participation to facilitate decision-making and real administration of the resources. Putting in place and enforcing the legal and policy frameworks are fundamental empowering conditions for sustainable forest management. This framework will need to be developed on basis of transparency and

[1264] Wiersum 1996.

accountability. It will also need to consider community needs and genuine involvement of communities in forest and woodland resource management

The current study attempts to identify legal and policy tools to support ecosystem management strategies and appropriate arrangements for the equitable sharing of benefits arising from ecosystem goods and services: It advocated for ways and means of shifting the emphasis on the former, hierarchical and highly centralized approach in decision-making in relation to forest conservation and management, and little room for delegation, to a type that fully involves the participation of local communities and smallholders to openly discuss and share their viewpoints. This study identified the legal and policy tools concerning public participation used in the country and examined the consequences of the regulation of resource degradation or deforestation as "factual consequences".

It could also be stated that in a bid to tackle land use issues, the government of Sudan has created the necessary enabling environment by putting in place environmental policies and legislation as well as setting up a wide range of institutions which handle various aspects of resource management such as law enforcement, policy formulation, research, and creation of awareness. The government has provided some degree of legal recognition to customary and state land tenure. Despite these efforts, environmental degradation in Sudan is still a major concern.

The primary conclusions drawn from review of Article 5 of UNFCCC 1992 (Research and Systematic Observation)[1265] of plans to implement the Convention indicated that in spite of the considerable number of Sudanese Universities of various disciplines, few universities handle the issue of climate change and variability as a separate or stand-alone subject at the levels of undergraduate and postgraduate degree programmes. Research is fundamentally weak and aimed at tackling single discipline issues rather than tackling sophisticated, multidisciplinary problems relating to climate change. The Agricultural Research Centre (ARC), together with a few selected universities, is the most dynamic in terms of climate change research. The National Meteorological Corporation is entrusted with the responsibility for keeping systematic observations for some of climate parameters, which can serve as significant source of data for future research on climate change. There are major gaps in meteorological and atmospheric research and systematic observations,

[1265] United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992), Article 5.

and these include: Absence of well-organized climate change coordination; the absence of a climate change information and database centre; and the absence of training in the subject of climate change.

5.2 Recommendations

There is a need to not only step up environmental management efforts, but also take a critical look at the various problems with a view to evolving appropriate measures of mitigation. Indeed, the discussion carried out in this study indicates problems associated with land-use policy and legislation. Having recognized the ambiguity in legal status to local tenure systems (rights and regulatory mechanisms) due to state-owned property, land laws and policies must be adopted with meaningful civil society participation and which would provide legal recognition to existing rights, and to build links between local landholding systems and formal law, all aimed at harmonizing the different landholding systems.

Modern-day human rights law supports participatory actions that relate to decisions affecting indigenous peoples' right to land. As the current case study of Sudan revealed, indigenous people have been dispossessed of their land, without them being consulted but being excluded from the decision-making process concerning land. Sustainable and rational solutions may be found through consultations and genuine participation of indigenous communities, bearing in mind the consideration of important social factors at all levels of decision-making.

The study recommends that local people should be allowed to reacquire their ancestral land and acquire legal property rights on these lands. General principles of international law are explicit about providing for reallocation of ancestral land to indigenous peoples, and when allocation is impossible, the allocation of alternative lands; granting protections that concern access to land (e.g., non-discrimination and equal rights as it relates to ownership and inheritance); an unequivocal consideration of the legal implications of access to land for a wide range of universally recognized human rights is crucial.

Any management strategy to support forestry must target policy measures that would encourage economic growth balanced with resource conservation. It should also involve a clear allocation of rights and responsibilities; equitable benefit sharing arrangements; application of appropriate technology and environmental safeguards; removal of disincentives to invest in forestry; and greater stakeholder involvement. Above all, there is a need for forestry institutions to become more flexible and responsive to capture prospects and strive to maximize the contribution of the forestry sector to emerging needs.

It is of paramount importance for forestry laws to create a well-formulated enforcement strategy for the formulation of forest management plan. Such a mechanism ought to be one that offers appropriate incentives for the regulated

subjects, just as there should be suitable guidelines for enforcement staff to minimize both the monitoring effort and the expenses for the regulated subjects and the public sector.

Land use planning is of vital significance when sustainable forest management is to be achieved. Thus, there is a crucial need to formulate a legal framework for rational land use planning. This will enhance collaboration and coordination between various land users and between federal, state and local governments of Sudan.

The land use planning legislation would play an important role in providing the preparation of a land use inventory; the development of a national land-use plan; and the establishment of a national land-use planning body to be entrusted with the responsibility for developing national land-use policies.

The top-down approach to the issue of land tenure has so far not succeeded. What is required is a bottom-up strategy. The opinions of grass-roots or local people need to be considered. Traditional land tenure systems ought to be revisited. The study suggests that efforts must be made to induce an internal process of law development and to produce a self-sustaining demand for legal innovation and change. A policy implication that has been drawn from this analysis is that transplanting the correct legal code of customary law will enhance natural resources development.[1266] Improved conditions in governance may lead to influential public opinion and thereby enhancing the roles of civil society, the private sector and local communities. Thus, it could be recommended that there is a crucial need for institutional reform and capacity building at all levels with the main purpose of supporting governance in general and environmental governance in particular.

The need to develop endogenous capacity for sustainable development in developing countries acquired particular currency during the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992,and found repeated emphasis in Agenda 21 in its Chapters 8, 38 and 39, respectively. As a follow-up to this development, national environmental legislation, and related institutions, was conceived of as part of these critical elements in capacity building for sustainable development. It is worth stating that "… laws and regulations adapted to the specific requirements of the recipient legal and administrative systems" play an increasingly significant role in environmental reform and development framework for the integration of environment and development in decision-making. Thus, both the Rio Declaration and Agenda 21 exhort Governments to establish an effective legal

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[1266] E.g., see Levine, R. Law, "Finance, and Economic Growth," *Journal of Financial Intermediation*, 1999. 8: 8-35.

and regulatory framework with a view to enhancing national capacities to respond to the challenges of sustainable development.

In order to guarantee the conservation of forest resources, legal mechanisms such as aligning responsive regulation principles for improving regulatory enforcement and inspections; provision of a mechanism for the formulation of a forest management plan; incentives targeting afforestation and reforestation; disincentives to holding onto land in large-scale mechanized commercial farming areas or other areas of marginal land and environmental impact assessment of forestry projects should be developed.

The Government of the Sudan should adopt policies on regulatory enforcement and inspections. It should spell out clear objectives and institutional mechanisms with clear objectives and a long-term roadmap should be established.

Facilitation and co-ordination of inspection functions should be consolidated where required: reducing duplication, fragmentation and overlaps will guarantee better, effective, efficient and responsible utilization of forest resources, minimize burden on regulated subjects, and maximize effectiveness.

To guarantee enforcement of the law, there is a pressing need to reinforce the integrity and capacity of the Sudanese government to prosecute by offering enough resources, just as the government should be disseminating knowledge about forestry to the public. In attempts to enhance law enforcement, courts ought to apply the principle of strict liability to forestry cases.

Formulating a national environmental policy or an umbrella law would help to improve and coordinate the government's plans, functions, programmes and resources for Environmental Impact Assessment. It would play a vital role in enhancing environmental quality standards and guidelines for environmental management and projects on forest resources or on biodiversity.

With reference to issues affecting the energy sector (Article 4(1))[1267] the experience gained in bringing the energy portion of the greenhouse gas (GHG) inventory up-to-date resulted in the following recommendations[1268] for the next update: A detailed study and survey of the energy sector is required in the future to gather the actual energy consumption data, and for petroleum products in particular, to develop the estimation of the actual GHG emissions in the energy sector. There is a need to characterize distributed generation: An investigation is required to develop data for small-scale electricity self-generation in the

[1267] United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992), Article 4(1).

[1268] HCENR 2013: 18.

commercial and household sectors. It is recommended that better emission and conversion factors that are suitable for Sudan be developed for both biomass and petroleum products. It is recommended that biomass consumption be characterized: An investigation is required for biomass energy including biomass burnt for purposes other than energy.

With reference to issues affecting the agricultural sector [Article 4(1)][1269] it is recommended[1270] that livestock data systems be enhanced: There is a requirement for the improvement of new livestock population information frameworks. Such a framework should be ought to be based on ecological zones and incorporate data on type, age, body weight change and seasonal distribution of animals. There ought to be promotion of inter-ministerial cooperation in the agricultural sector: The Ministries of Agriculture, Animal Health and the Higher Council for Environment and Natural Resources ought to collaborate in an extensive range of information gathering, including information on livestock, crop residue burning, soils etc. Also, the greenhouse gas (GHG) inventory updating process ought to be institutionalized with a clear meaning for responsibility and accountability. The experience acquired to update the Land Use Change and Forestry (LUCF) part of the GHG inventory results in the following recommendations[1271] for the next update:

The advancement of a LUCF-based database information system is required, based on systematic scientific research and field surveys. Institutional cooperation must be encouraged and, in this case, *d*eveloped information access and availability across national institutions is required for preparing a GHG inventory on a timely basis and for quality improvement. Strengthen national capacity is recommended, and in this case, *s*upplementary comprehensive training of national subject matter specialists on inventory methodologies for the LUCF sector is required.

In order to tackle the constraints affecting the implementation of Article 6 (education, training and public awareness)[1272] the following recommendations should be implemented, coupled with funding from the UNFCCC's Parties: It is recommended that institutional reform be followed: In this case, there ought to

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[1269] United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992), Article 4(1).

[1270] HCENR 2013: 22.

[1271] HCENR 2013: 25.

[1272] United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992), Article 6.

be a reshaping of the vision and institutional roles of the government organizations working in conservation of natural resources at national and state levels. This ought to happen within the prevailing mandates of different ministries, with the addition of new terms of reference and a considerable time period for policy implementation. There should be improvement in the capacity of major institutions such as the HCENR, to enhance coordination crosswise over national organizations, increase awareness between policymakers, develop/implement a strategic training programme, and meet other UNFCCC[1273] demands.

Legal reforms ought to be enacted to enable the country to introduce new laws and regulations with the aim of reducing vulnerability to climate change, developing sustainable climate change data systems, and ensuring compliance with obligations under the UNFCCC.[1274] Systematic climate change knowledge and information systems need to be properly developed in order to satisfy requirements of UNFCCC for GHG inventories, vulnerability and adaptation assessment, and GHG mitigation analysis. The development of transparent broadly open accessible internet-based data systems is basic to meeting this recommendation.

Universities ought to advance the integration of disciplines that lead to multidisciplinary programmes. Advanced study programmes on environmental management ought to be created on the topics of monitoring climate change impacts, introducing adaptive management, and mitigation in the agriculture and LUCF sectors. Such programmes ought to integrate indigenous knowledge and traditional practices as much as possible.

Research ought to focus on the implementation of sustainable development and must consist of pilot projects that connect researchers to communities and build public-private partnership opportunities. An important consideration is also to highlight the structural links between research programmes that foster the creation of networks among universities and research institutions. Attempts should be made to enhance communication capacities and laboratory equipment to monitor the various parameters associated with climate change. Institutional capacity should also target training in order to attain the UNFCCC's objectives, including conducting educational programmes in information technology and

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[1273] United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992

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‘training of trainers’ courses.

Efforts ought to be made to enhance the connection between government agencies and NGOs on basis of trust. Future coordinated effort ought to be founded on seen areas of need, including climate change awareness raising and training projects. Government agencies should try to develop a conducive environment for better involvement of NGOs. It is recommended that there be research to carry out a needs assessment: The advancement of a national survey to evaluate necessities and prerequisites for the implementation of article 6 of the UNFCCC is essential. The outcomes of such a survey could go a long way in helping the mobilization of new partnerships for climate action.

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Charter of the United Nations and Statute of the International Court of Justice

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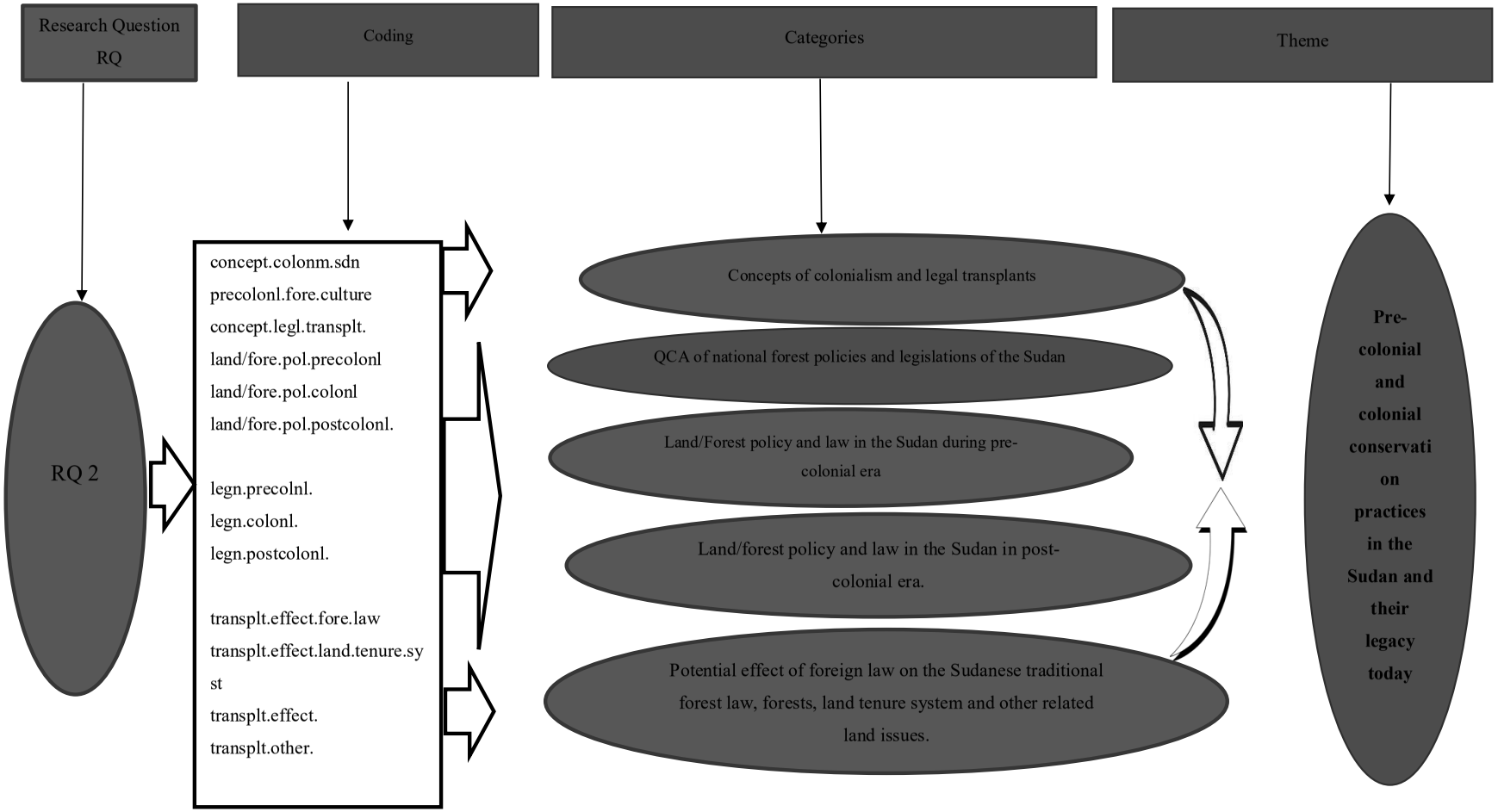
APPENDICES



Appendix I: Figure 3. Sample diagram showing research question, coding, categories and theme derived from question number 2.

Appendix II (Table 15). Phases of Qualitative content analysis (QCA) of research question number 2, indicating research questions, categories and theme.

Research Question No. 2	Category	Theme	QCA in relation to the fulfillment of intended aims of the study
(a) What was the forest policy and legislation in the Sudan during the pre-colonial, colonial and post-colonial, eras?	• Concepts of colonialism and legal transplants; • Land/Forest policy and law in the Sudan during pre-colonial era; • Land/forest policy and law in the Sudan during colonial era; • Land/forest policy and law in the Sudan in post-colonial era.		QCA fulfilled the role of completing the following: Identification of research problems and development of research question to serve as the focus of the research; *Collection of specific primary sources of law*: Systematic identification based on multiple electronic databases employed for literature search (see Table 1);

(b) What factors, if any, facilitated changes in forest policies and legislations or were a hindrance to them?	QCA of national forest policies and legislations of the Sudan		*Collection of secondary data* from other published and unpublished grey literature in relation to the Sudan, reference books, legal textbooks, legal journals and legal encyclopaedias (see Table 1); Data analysis by coding and categorization, revealing the hidden theme;
(c) To what extent has the development of the common law of land since its importation in the 19th century in Sudan occurred in difference in local circumstances?	• Potential effect of foreign law on the Sudanese traditional forest law, forests, land tenure system and other related land issues.	**Pre-colonial and colonial conservation practices in the Sudan and their legacy today**	Determination of theme cutting across data sets: The whole exercise eventually generated clear categories and themes; Documenting findings and drawing of conclusions.

ISBN 978-951-51-6792-7
UNIGRAFIA
HELSINKI 2020